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AN
ESSAY
ON
PLANTERSHIP.

INSCRIBED TO
Sir GEORGE THOMAS, BART.
AS A
Monument to Ancient Friendship.

Ære perennius eſto!

The Seventh Edition, with all the Additions from the Author's Experiments to the Time of his Death.

By COLONEL (Samuel) MARTIN *of Antigua.*

ANTIGUA, Printed by ROBERT MEARNS. 1785.

DEDICATION

TO ALL THE PLANTERS OF THE BRITISH SUGAR COLONIES.

THIS little tract, firſt written for the inſtruction of a young Planter, is now preſented to the public in hopes of doing more general good, and humbly dedicated to you, Gentlemen, as to the moſt proper patrons, without any expectation of other reward, than that of a candid peruſal. If the precepts here inculcated are conſonant to plain reaſon, and confirmed by experience, the Propoſer will think his pains amply rewarded, by promoting your intereſt with that of the public: if otherwiſe, let this be rejected, and a better ſcheme of planterſhip propounded for the general practice. But even in that caſe, I ſhall have a right to claim the merit of being a whet-ſtone to ſharpen the ingenuity of other men, in the ſervice of their country: or, as a witty old poet expreſſes it much better than I can tranſlate,

> ———*Fungar vice cotis, acutum*
> *Reddere quæ ferrum valet, exors ipſa ſecandi.*

The Author confeſſes his want of acuteneſs to treat well a ſubject, which hath employed the pen of Virgil, Columella, and ſeveral other great Genii of antiquity; for, being grown old, his faculties, if ever keen, have loſt much of their edge: he is indeed paſſed the ambition of acquiring reputation by authorſhip: for, if that had been his view, he could not have paid his court to Fame in this remote corner of the world, where ſhe can never have the power of conferring dignity, or of ſounding her golden trumpet: nor would he have choſen a topic of which the meaneſt overſeer thinks himſelf an admirable judge; becauſe well aware that it is the hardeſt taſk imaginable to write with applauſe upon ſo trite a ſubject. This, Gentlemen, you will ſee, he has treated with the utmoſt plainneſs, aiming much more at perſpicuity, than ornament. Brilliant metaphors and other glittering embelliſhments are proper decorations for works of Fancy, which never charms the modern critic ſo much as when dreſs'd like a faſhionable lady, in all the ſplendor of wit, beauty, and other finery of ribbons, laces, bugles, fringes, flounces, and flowers. But ſuch gaiety would ill become the gravity of that venerable matron Agriculture, whom I have the honour of introducing to your favour. Her dreſs muſt be ſimple and unaffected, becoming thoſe reverend grey hairs with which old age has adorned her head: but old as ſhe is, her aſpect has more winning graces than dreſs and beauty can beſtow; even ſuch as virtue, temperance, and exerciſe uſually confer upon ſolid ſenſe, and mature judgment. By theſe charms Agriculture captivated all the renowned legiſlators, patriots, ſoldiers, orators, and poets of antiquity, who gladly devoted their hours of retirement to this admirable Inſtructreſs, and her induſtrious ſiſter Experience.

In thoſe days when Rome was in its meridian of virtue and glory, it was common to ſee a dictator reſigning, with pleaſure, all the pomp of a triumph to till his little farm; as if Agriculture was the only genuine parent of eaſe, innocence, temperance, health, wiſdom and fortitude; certain it is however, that the beſt plowmen were the braveſt generals, and the wiſeſt polititions of the Roman commonwealth; as if the ſame qualifications were equally requiſite to form thoſe very different characters. This I confeſs ſeems a paradox at firſt view; but upon cloſer examination will appear not leſs true of a good planter, than it was formerly of a Roman huſbandman.

A liberal education is undoubtedly the principal ingredient neceſſary to form a good planter, who ought at leaſt to know the rudiments of all the ſciences, if he attains not the maſtery of them: but to be more preciſe, let us take a ſhort view of the proper qualifications of a planter in his public and private capacity. If he is born to a large eſtate or has acquired it by induſtry, he muſt expect to be a member of the legiſlature, and of the military order alſo. In the former character he muſt underſtand the whole ſcience of good policy, founded upon the nature and ends of government in general; and in particular upon the conſtitution of Britain his mother country, and of the iſland which he inhabits. The true intereſt of *that* will be promoted moſt effectually, by the inſtitution of good laws for the encouragement of credit and commerce, to the advantage of fair traders, and to the utter extirpation of all clandeſtine commerce, *that canker at the heart of civil ſociety;* but more eſpecially by ſuch laws as will effectually ſecure the *ſafety* of his country, both from within, and from without. To that end the wiſe policy of Barbadoes with reſpect to *Settlers*, is moſt worthy of imitation by the other Britiſh Sugar Colonies: for ſervants, as well artificers as others, at the expiration of their ſervitude, are there made Landholders of three, four, or five acres, and by that means become *permanently intereſted* in the preſervation of the iſland. But the ſervants act of this, ſeemingly intended for increaſing the number of our inhabitants, is nothing better than a mere *mode* of raiſing part of the annual tax. At Jamaica the law is much the ſame: but it is hard to conceive how the patriots of that iſland can juſtify their tame acquieſcence under ſuch a fruitleſs law: and it is yet more wonderful that they ſhould ſubmit to a ſhameful *monopoly*[*] of great tracts of land ſo inconſiſtent with all views to the populouſneſs of a country, ſubject both by its great extent, and high mountains, to *inteſtine wars* not poſſible to be ſuppreſſed by *a few*; and ſituated ſo near *two* powerful Nations; the one aiming at univerſal dominion, and the other peculiarly ambitious to recover an antient poſſeſſion taken from them by conqueſt. If thoſe Gentlemen who grudge a ſmall portion of their lands for poor ſettlers would compute how far preferable a *leſs poſſeſſion is with certainty*, to a *greater without it*, they could not be ſo blind to their own real intereſt as to bar the door againſt all kind of ſettlers both rich and poor: eſpecially when it is conſidered, that by an higher culture, a *leſs* quantity of land will yield *much more* profit, than a very large tract ill cultivated.

The true patriot therefore will not grudge a ſmall portion of his lands to render his country populous, as well knowing that the very exiſtence of it depends upon the number and good diſcipline of its inhabitants; for, by that means all attempts of inſurrection will be prevented. It is true, that an inſurrection never can be ſucceſsful in theſe iſlands, while Britain has ſuch ample power to ſuppreſs, and take vengeance upon rebels; yet the very attempt may be the cauſe of much bloodſhed, and the maſſacre of the moſt brave men, who are ever foremoſt in danger for the public defence. But a numerous body of white men intereſted in the ſoil, and well diſciplined, not only ſtifle ſuch rebellious machinations in the birth, but are able and ready to repel any invaſion by our moſt powerful neighbours: and if the bulk of our people conſiſts (as it ought to do) of Artizans, *workmanſhip will become cheaper*, and *they themſelves* grow much *richer*, by having *more employment;* for then every man, who can pay, will be glad to have all the conveniencies, and even the elegancies of life about him. The wiſe Legiſlator will ſurely conſider theſe points very maturely, and provide timely for all the exigencies of his country: for, as *Precaution* is the eldeſt ſon of Wiſdom, by Valour; ſo Heedleſſneſs is the child of Folly, begotten by Stupidity. The former guards againſt every future evil, and when not to be prevented, is moſt reſolute in repelling public injuries: but the latter, ever laughing at diſtant dangers, is the firſt to fly like a coward, when they are preſent.

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[*] If the Legiſlature of Jamaica would raiſe a great part of their annual tax upon *uncultivated lands*, the engroſſers muſt be obliged to ſell cheap, or ſuffer them to be ſold by the Receiver General under the ſanction of a law, giving a good title to all buyers.

In the capacity of a ſoldier the accompliſhed planter muſt be well read in the hiſtory of former wars; and become intimately acquainted with all the famous Generals of antiquity, as to their characters, genius, diſcipline, ſtratagems, and atchievements. Among the maxims of the beſt and wiſeſt of them, he will find, that the *meaneſt enemy is not to be deſpiſed*, and the *greateſt* may be ſubdued by ſuperior *generalſhip**. Inſtead of being inactive in times of peace, the good ſoldier will think it the *moſt proper ſeaſon* for training his men without interruption to good diſcipline: for, by that only, a ſmall body will overcome a numerous army without it; as Alexander's few veterans did the innumerable hoſts of Perſia: for, every trained ſoldier well knowing and depending upon the ſupport of his fellows, acts with confidence; and irreſiſtibly too, by the force of the whole body united in one compact phalanx.

As a magiſtrate he muſt be acquainted with the common forms of juſtice, and our ſtatute laws. In his private character he muſt be an adept in figures, and in all the arts of œconomy; ſomething of an architect, and well ſkilled in mechanics; becauſe there is in every plantation a variety of buildings and machinery, upon the right contrivance and uſe of which, much of the planter's ſucceſs depends. He muſt alſo be an expert ſugar boiler, and diſtiller, if he expects to make the moſt of his eſtate. It is obvious of what benefit a little phyſical ſkill will be to his ſick negroes; at leaſt enough to cure ſuch * acute diſeaſes as are incident to the country he inhabits; together with proper diet, and kitchen phyſic, which are generally moſt efficacious. But every planter ſhould be more particularly a very ſkilful huſbandman; becauſe upon the right culture of his ſoil depends abſolutely the *quantity*, and in a great meaſure the *quality* alſo of his produce.

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* Our juſtly celebrated Hero, the late Duke of Marlborough proved the advantage of ſuperior *Generalſhip, by many ſignal victories over* the armies of France, which always were more numerous, and probably as well diſciplined.

It is very true, that much time and cloſe application muſt be allowed for the acquiſition of all theſe accompliſhments: and every planter can afford it, when the cares of the day are over. But there ſtill remains a more arduous taſk, to become a real practical philoſopher by the conqueſt, or government of all the human paſſions: for, if theſe are not under abſolute ſubjection to right reaſon; how can the planter exert all the ſocial virtues upon ſo many and great occaſions, as muſt every day call them forth? Or how can he govern ſome hundreds of his dependents with eaſe to himſelf, and happineſs to them, without all the influences of a good example? White ſervants as well as negroes are the planter's dependents: and if according to the principles of humanity, the latter ought to be treated with great kindneſs, how much more is it due to the former, who are directors of the others labours, and ſtand in a nearer relation to us? Upon a generous treatment of them therefore much of the planter's proſperity will depend: for, gratitude is the ſtrongeſt obligation upon honeſt minds to diligence, and diligence is ever moſt active, when it runs hand in hand with content, good humour, and chearfulneſs. Juſtice, temperance, patience, and fortitude, tho' cardinal virtues of the higheſt quality, muſt be the planter's conſtant familiars, ever ready to do *right* to thoſe who ſuffer *wrong*; to exhibit a life of ſobriety, chaſtity, and beneficence, as a pattern to be imitated by all his family; to bear patiently the vulgar weakneſſes of frail human nature; and even the perverſeneſs of thoſe under his charge; to ſuppreſs wickedneſs by ſuitable puniſhments, and to encourage goodneſs with generoſity; and after all, to bear proſperity, or adverſe events, with equanimity, and a becoming fortitude. Every ſocial and private virtue muſt therefore enter into the compoſition of a good planter, who aſpires to act his part well, on this ſtage of life, and to make his exit with ſelf-approbation, and univerſal applauſe.

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* Acute diſeaſes are often ſo ſudden and violent in theſe climates, that all remedies come too late, before a ſkilful phyſician can be called: in pleuriſies and inflammatory fevers the celebrated Doctor James's powders have effected wonderful cures, well worthy the notice of our practitioners: as the famous Doctor Ward's excellent medicines have done in chronical diſeaſes. In many of thoſe caſes, both tar water and lime water are of admirable uſe.

That every planter in general, and my own countrymen in particular, may arrive at that honour and felicity, is the principal deſign of this eſſay, and the ardent deſire of,

GENTLEMEN,

Your faithful Servant,

S. M.

AN

ESSAY ON PLANTERSHIP.

BY PLANTERSHIP, I underſtand the art of managing a ſugar plantation to the beſt advantage; ſo as to make it produce the moſt, both in quantity and quality. To effect a deſign ſo comprehenſive, it is neceſſary to underſtand every branch of the art preciſely; to plan every ſcheme with mature premeditation; and to exerciſe all the arts of œconomy in the execution: for as a ſugar plantation is the moſt expenſive kind of eſtate; ſo the clear profit of it will be more or leſs in proportion to the manager's frugality. It is therefore the duty of a good planter to inſpect every part of his plantation with his own eyes; to place his proviſions, ſtores, and utenſils in regular order, and in ſafe repoſitories; that, by preſerving them in perfection, all kinds of waſte may be prevented.

But as negroes, cattle, mules, and horſes are the *nerves* of a ſugar plantation, it is expedient to treat that ſubject with ſome accuracy; for the ſucceſs of the whole conſiſts chiefly in this, as in a well conſtructed machine, upon the energy and right diſpoſition of the main ſprings, or primary parts.

Firſt then, let us conſider what is the right or rational method of treating negroes; for rational beings they are, and ought to be treated accordingly; that is, with humanity and benevolence, as our fellow creatures, created by the ſame Almighty hand, and under the ſame gracious providence, to whom the beſt and greateſt of the human ſpecies owe their exiſtence, and are accountable. The ſubordination of men to each other in ſociety is eſſentially neceſſary to the good of the whole; and is therefore a juſt reaſon for the benevolence of ſuperiors to their inferiors. The meaneſt individual has then an equal right to civil protection with the greateſt, and to a ſhare of what the earth produces, as the natural reward of his labour: The loweſt condition is not a juſt ground for contempt or neglect, no more than the colour of a man's complection is for uncharitableneſs; and whatever Europeans may think of it, the diſtinction between the vulgar of the moſt free government and the negroes of our colonies is little more than *nominal*; for he that is forced to hard labour in ſupport of life, is as much *a ſlave to neceſſity*, as negroes are to their owners. The only difference is, that the former may chuſe his maſter: but it is out of his power generally to chuſe a better: he that pays him a pittance for his labour does his duty, and all that he owes; but ſtill the daily labour proceeds, and neceſſity will make no abatement for ſickneſs, or other accidental inabilities; and the tender mercies to pariſh officers, like the miſer's largeſſes, adminiſter but little comfort to a ſick man, and perhaps a numerou offſpring. But negroes purchaſed by the Britiſh planters are redeemed from abſolute ſlavery to a degree of liberty, much greater than the ſubjects of abſolute power in Europe; for they enjoy the privileges of written laws, by which their lives and little properties are ſecured; and being ſubject to ſuch correction as children are to parents, or apprentices to maſters, ſeldom receive more puniſhment for felonies, than criminals do in Britain for petty larcenies: for as it is the intereſt of every planter to preſerve his negroes in health and ſtrength; ſo, every act of cruelty is not leſs repugnant to the maſter's real profit, than it is contrary to the laws of humanity: and if a manager conſiders his own *eaſe*, and his employer's intereſt, (as he muſt do if he is an honeſt man) he will treat all negroes under his care with due benevolence: for good diſcipline is by no means inconſiſtent with humanity: on the contrary, it is evident from experience, that he who feeds his negroes well, proportioneth their labour to their age, ſex, and ſtrength, * and treats them with kindneſs and good nature, will reap a much larger product, and with infinitely more eaſe and ſelf ſatisfaction than the moſt cruel Egyptian taſk-maſter, who ſtarves his negroes, or chaſtiſes them with undue ſeverity. Every man then, who wiſhes to grow rich with eaſe, muſt be a good œconomiſt; muſt feed his negroes with the moſt wholeſome food, ſufficient to preſerve them in health and vigour. He muſt alſo treat them with juſtice and tenderneſs; not ſuffering the leaſt injury to be done by any one to another: for, tho' a maſter may, and ought to forgive ſmall injuries to himſelf, it is not in his power conſiſtently with juſtice, to forgive injuries done to another, without due compenſation. In caſe of ſickneſs, the good planter will exerciſe in perſon his utmoſt care and tenderneſs in the adminiſtration of proper phyſic and food, with an unſparing hand: for, to be parſimonious iu ſuch caſes, is both weak and wicked. Common experience points out the methods by which a planter may preſerve his people in health and ſtrength. Some of his moſt fruitful land ſhould be allotted to each negro in proportion to his family, and a ſufficient portion of time allowed for the cultivation of it; but becauſe ſuch allotment cannot in long droughts produce enough for his comfortable ſupport, it is the incumbent duty of a good planter to have always his ſtores well filled with Guinea corn, yams, or eddas, beſides potatoes growing in regular ſucceſſion: for plenty begets chearfulneſs of heart, as well as ſtrength of body, by which more work is effected in a day by the ſame hands, than in a week when enervated by want and ſeverity. Scanty meals of New-England corn may ſuſtain life, but it is our own produce only which can impart athletic vigour; and yet if the labour of producing our own proviſions was fairly computed, and compared to the expence of purchaſing that of North-America, I dare affirm the latter will be found as expenſive, tho' much leſs wholeſome and nutritious. It is therefore matter of juſt concern to ſee the cultivation of proviſions ſo generally neglected in our colonies, where there is not wanting in any plantation ſome kind of ſoil, adapted by nature, or improveable by art, to the production of ſome ſort of proviſions. This general neglect (if my opinion may be admitted) is one great cauſe of our general poverty: for, while the planter feeds his negroes ſcantly, or with unwholeſome food, how can he expect much labour and plentiful crops? Such expectations are vain and fruitleſs! He therefore who will reap plentifully, muſt plant great abundance of proviſions as well as ſugar canes: and it is nature's œconomy ſo to fructiſy the ſoil by the growth of yams, plaintains *, and potatoes, as to yield better harveſts of ſugar by that very means, than can be produced by many other arts of cultivation: ſo bountiful is the Creator, to make that moſt for our intereſt, which is moſt our duty. However plenty of wholeſome food may be conducive to health, there are alſo other means equally neceſſary to ſtrength, and the longevity of negroes, well worth the planter's attention: and thoſe are, to chuſe airy, dry ſituations for their houſes; and to obſerve frequently that they be kept clean, in good repair, and perfectly water-tight for, naſtineſs, and the inclemencies of weather generate the moſt malignant deceaſes. If theſe houſes are ſituated alſo in regular order, and at due diſtances, the ſpaces may at once prevent general devaſtations by fire, and furniſh plenty of fruits, and pot herbs, to pleaſe an unvitiated palate, and to purify the blood.

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* Hoe-plowing or holing ſtiff land is an heavy labour that ought to be relaxed often by eaſier work, which by good contrivance may be done with equal benefit, and ought to be done.

Thus then ought every planter to treat his negroes with tenderneſs † and generoſity, that they may be induced to love and obey him out of mere gratitude; and become real good beings by the imitation of his benevolence, juſtice, temperance, and chaſtity: for nothnig influences the conduct of mankind ſo much as the example of ſuperiors, who are always in view: and therefore a good planter, for his own eaſe and happineſs, will be careful of ſetting a good example,

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* Plantains are the principal ſupport of all the negroes at Jamaica; and are alſo much cultivated, at great expence of manure, in Barbados. But ought not to be ſolely depended upon, in climates ſubject to hurricanes. A celebrated planter and œconomiſt of that iſland, who raiſed an immenſe fortune from very ſmall beginnings only, by planting, affirmed, that he fed conſtantly at leaſt 300 negroes out of 12 acres of plantains. How that excellent produce came to be ſo long neglected in this iſland, is hard to gueſs: but at preſent the neglect ſeems to be founded upon a vulgar error, that plantains cannot thrive in any other than low moiſt ſoils. In ſuch places (no doubt) they flouriſh moſt luxuriantly; but yet they thrive and bear fruit abundantly on mountains, and in marſhes; and in the drieſt black mold, upon marle or rocks, and even in ſharp gravelly ſoils, as may be evinced by numberleſs inſtances. Beſides the advantage of having a large product of our proviſion, independantly of caſual ſupplies, we may by that means prevent the monopoly of corn. and in ſome meaſure the conſtant drain of our current caſh, which the New-England traders now carry to St. Euſtatius, for the purchaſe of French ſugar, rum, melaſſes, and other foreign manufactures. A baſe deſtructive trade, which (if not effectually prevented) will infallibly exalt the French iſlands upon the ruins of theſe colonies. This illicit trade is audaciouſly carried on in the face of the ſun, by the moſt flagitious race of men; by parricides who ſtab their country to the heart, that they may ſuck their ſubſiſtence from its vital blood. Yet even theſe abandaned wretches have been able, with the help of thieves, pick-pockets, and robbers, to caſt a general odium upon the honeſt name of *informers*, purely to ſcreen their wickedneſs from detection, and condign puniſhment: but whatever they may ſay, whoſe tongues are no ſlander, the *informer* who brings ſmugglers to the bar of juſtice, is the beſt friend to his country? while thoſe traitors to it ſhould be ſcorned and deſpiſed as pirates upon the fair trader, and as the greateſt peſt to civil ſociety; from whence they ought to be driven by the conſtant diſcouragement of every man pretending to common honeſty.

† It is a general but a bad maxim, *to finiſh a piece of work when it is begun*; for the alteration of weather, and the hardneſs of labour, muſt require changes and intermiſſions.

as the beſt means of propagating the goſpel morality. Having thus hinted the duties of a planter to his negroes, let the next care be of cattle, mules, and horſes: for theſe creatures are next in degree valuable to their owner. The planters of Barbados (who are perhaps the moſt ſkilful of all others, and exact to a nicety in calculations of profit and loſs) are, with reſpect to their cattle, the moſt remiſs of any in all the Iſlands; as if the carriage of canes to the mill, and of plantation produce to the market, was not as eſſential as any other branch of planterſhip. At Barbados in particular, the care of theſe animals is of more importance, becauſe the ſoil, worn out by long culture, cannot yield any produce without plenty of dung. Some planters are nevertheleſs ſo ingeniouſly thrifty, as to carry their canes upon negroes heads; not only degrading human nature to the toil of brutes, but acting in that reſpect diametrically oppoſite to their own apparent intereſt, which cannot be ſerved more effectually, than by ſaving the labour of human hands in all caſes where the labour of brutes can be ſubſtituted. To that end no means of preſerving thoſe creatures in health and ſtrength ought to be neglected.

The firſt care therefore is to provide plenty and variety of food. In crop time profuſion of cane tops may be had for the labour of carriage; but will be more wholeſome and nutritious if tedded like hay by the ſun's heat, and ſweated by laying them in heaps a few days before they are eaten. In this ſeaſon of abundance, great ricks of cane tops (the butt ends turned inwards) ſhould be made in the moſt convenient corner of each field, to ſupply the want of paſturage, and other food: and theſe are very wholeſome if chopped into ſmall parts, and mixed ſometimes with common ſalt, or ſprinkled with melaſſes mixed with water: but yet the cattle require change of food to preſerve them in ſtrength, ſuch as Guinea corn, and a variety of graſs, which every ſoil produces with a little care in moiſt weather. This variety is found neceſſary in all climates, and is the hind's conſtant practice in England, where good huſbandry is crowned with moſt ſucceſs.

But ſince that variety is not to be had during thoſe ſevere droughts to which hot climates are liable; and much leſs in theſe ſmall Iſlands, which cannot furniſh large tracts of meadow lands for hay; our only reſource is to the fodder of cane tops, or tedded Guinea corn leaves, which from my own experience I can affirm to be very nutritious; and may be preſerved in perfection for more than a whole year, provided the tops or Guinea corn are well tedded for three or four hot days as they lie ſpread in the field; and then being tied into bundles or ſheaves, muſt lie in the hot ſun for three or four days more, when they may be fit to be put up into ricks. The beſt method of making them is in an oblong figure; about thirty feet in length, and 16 or 18 feet wide; 7 feet high at the ſides, and from thence ſloping like the roof of an houſe, the ridge of which muſt be thatched very carefully; for the ſides may be ſecured from wet by placing the bundles with the butts upwards towards the ridge, in courſes, and lapping the upper over the lower courſe.

The beſt method of forming thoſe ricks is to place the firſt courſe of bundles all over the baſe one way; the ſecond courſe reverſely; and ſo alternately till the rick be finiſhed.

When cattle are to be fed with this excellent fodder, it muſt be obſerved to take down the bundles from the top, at [*] the weſt end of the rick, to the bottom; for all theſe ricks muſt ſtand eaſt and weſt lengthwiſe, as well to ſecure them from being overturned by high winds, as for the convenience of preſerving them from wet, which cannot be done when ricks are made round. By this huſbandry an herd of cattle may be kept in ſtrength, either in ſevere droughts, or in wet ſeaſons, when graſs is purgative: and thus the neceſſity, or expence of large paſtures may be totally ſaved.

Tedding Guinea corn, to make a kind of hay has been mentioned, and will require a little explanation here. When Guinea corn is planted in May, and to be cut down in July, in order to bear feed that year; that cutting tedded properly will make an excellent hay, which cattle prefer to meadow hay, as I have found by experience. In like manner, after Guinea corn has done bearing feed, the blades which ſhoot up, or after-crop, as it is called in England, will furniſh a great abundance of that excellent kind of fodder, which will keep well in ricks for two or three years.

The next care of a planter is to provide *ſhade* for his cattle, either by trees where they are fed in the heat of the day, if his ſoil requires not dung; or by building a flat ſhade over the pen where cattle are confined for making it. That ſuch ſhades are eſſentially neceſſary to the well-being of all animals in hot weather, is apparent to every common obſerver, who cannot fail of ſeeing each creature forſaking the moſt luxuriant paſtures in the heat of the day, for the ſake of ſhade; thus convincing the owner by inſtinctive argument, that ſhade is almoſt as neceſſary to the well-being of the brute creatures as food. Notwithſtanding that demonſtration from the unerring courſe of nature, I am ſorry to confeſs, that ſome men ſhut their eyes againſt this animadverſion, and their own intereſt; for throughout all our Iſlands (except in a very few inſtances) theſe poor creatures are expoſed to the ſcorching ſun beams without mercy. Such inhuman neglect is not always ſo much the effect of inattention, as of a miſtaken notion, that ſhades are impedimental to the making of much dung; but a flat ſhade covered with cane traſh may be ſo made as to let rain paſs thro' it, without admiſſion of ſun beams. This will do for cattle, but mules, which are ſpirited creatures, and work themſelves by draught into a foaming heat, ſhould be put into a warm ſtable, until quite cool; for turning them looſe to paſture, when ſo hot, is the cauſe of their deſtruction by the glanders.

If the care of providing ſhade for brute creatures is ſo much the duty and intereſt of their owners, how much more is it agreeable to the laws of humanity to provide ſhade for human creatures travelling upon the high roads in this hot climate? Nothing ſurely of ſo much beauty, is ſo little expence as planting coco-nut, or ſpreading timber trees in avenues along the high ways, if each proprietor of the lands adjoining hath any taſte of elegance, or feeling for other men: but both thoſe kinds of trees will yield alſo great profit to the proprietor, by furniſhing him with timber, when perhaps not otherwiſe to be had; or with delicious milk, fitted by nature to cool the effervescence of the blood in this hot region; and alſo to improve our ſpirits made from ſugar to the delicacy and ſoftneſs of arrack *. Coco-nut, and cabage trees are both very beautiful and ſhady, bearing round heads of great expanſion, upon natural trunks, or pillars of elegant proportion, and of ſuch an height as to furniſh a large ſhade, with a free circulation of air equally refreſhing to man and beaſt.

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[*] The hay knife uſed in England for cutting hay anſwers for cutting ricks of tops.

The common objection of injury to canes by the roots of ſuch trees growing on their borders is too mean to deſerve an anſwer: but to gratify the muckworm, let him dig a ſmall trench between his canes and trees, which may intercept their roots, and oblige them to ſeek ſuſtenance in the common road, and he will prevent the little expence to his purſe, which he now ſaves from the ſweat of travellers, by not planting trees. Let ſuch a man conſider, beſides the benefits above ſuggeſted, that he will beautify his eſtate to the reſemblance of a moſt ſumptuous garden. And if this whole iſland, naturally diverſified with numberleſs little hills and dales, were planted with avenues along the high roads, and the ſummit of every barren hill crowned with clumps of trees, it would be the moſt magnificent garden the world could ever boaſt of, ſince that of Eden: and probably that very beauty might not only render it more healthful to the inhabitants, by preſerving them from fevers, kindled by the burning ſun beams; but alſo much more fruitful, by ſeaſonable weather: for, as by cutting down all its woods, an hot country becomes more ſubject to exceſſive droughts, ſo by replanting it in the manner above deſcribed, it would probably become more ſeaſonable.

Let then the good planter be kind not only to his fellow creatures, but merciful to his beaſts, even for the ſake of the owner; giving them plenty and variety of wholeſome food, clear water, cool ſhade, and a clean bed, bleeding them after a long courſe of hard labour, currying their hides from filth and ticks, † affording them ſalt, and other phyſic, ſuch as experience preſcribes; protecting them from the flaying rope laſhes of a cruel driver, (who needs no other inſtrument than a goad) proportioning their labour to their ſtrength; and by every art rendering their work as eaſy as poſſible. The general management of planters is not perhaps more defective in any other reſpect, than in this: for, by pairing our cattle unequally, and by the drivers ill conduct in writhing to the right and left, the poor creatures are fatigued by needleſs labour. Let therefore the Engliſh huſbandman be our examplar, who trains his cattle to an even draught, by harneſſing an horſe before them as a leader. This docile creature, by being led in a ſtraight line, will ſoon learn to be an unerring guide, and the cattle will follow in the ſame direction, with united ſtrength; and conſequently with more effect, and leſs fatigue to each individual.

But if the Engliſh huſbandman's example be thought too expenſive by the addition of a horſe or mule to every team, let the practice of the Portugueſe of the

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* Arrack, ſo called in Eaſt India, is a ſpirit made of ſugar like rum, with this only difference, that the ſap of the coco-nut tree, called toddy, drawn off by cutting the fruit branch, is part of the mixture to forward the fermentation, and anſwers the end of lees, as yeaſt or barm.

† One pound of native ſulphur, a quart of lamp oil, and the like quantity of hogs lard intimately mixed and made into an ointment, is a cure for the mange, lice, &c.

iſland of Madeira be our pattern in this reſpect, however ignorant and unſkilful in all other mechanic arts. Theſe people, by their poverty and ſcantineſs of paſture, breed the ſmalleſt kind of cattle, and yet one yoke of them will draw a much greater weight than a pair of our largeſt oxen, ſolely by an equal exertion of their joint ſtrength. That equality or evenneſs of draught is preſerved by boring gimblet holes thro' their horns, within two inches of the points, and running a thong of leather thro' thoſe holes, ſo as to tie the horns of each pair at ſix inches diſtance from each other. By this ligature the pair of cattle are abſolutely hindered from turning different ways, and draw in an even direction with united force. Thus it appears evidently from reaſon, as well as from experience, that the labour of our beaſts may, by a little contrivance, be rendered more eaſy and effectual. Nothing contributes more to the eaſy draught of carriages than a *right make* of the axis, the bottom of which ought to be a *ſtraight line*; and the ſlope at the ends, made from the upper part, and the ſides. It is alſo found by late experience in England that *broad wheels* are preferable much to *narrow*: and I have by experiment found it ſo; but eſpecially in wet weather. Axle tree irons lett in at the lower ſide of the axis, anſwer much better than clouts; preſerving the wheels in a proper poſition, and the axis from wearing, ſix times longer than uſual. *

Having thus treated the management of negroes and cattle, as the main ſprings of a ſugar plantation, let us now conſider the various parts of planterſhip, from the firſt ſtep of cultivating the ſoil to the completion of that work; not minutely or ſyſtematically for that is needleſs, ſince every young planter muſt learn what he ſees every day in common practice, or the topic of converſation; but my principal intention is to reform vulgar, and groſs errors in capital points; and without dogmatizing, to adviſe ſome improvements in agriculture, taken from the practice of Britiſh huſbandmen, who are now become the patterns of all Europe; ſubmitting however each precept to the correction of my experienced brethren the planters, to whom this work is dedicated, and by whom it may be improved by ſuch uſeful additions and emendations, as future experience ſhall juſtify: but ſince order or method contributes to perſpicuity, I have choſen to divide the ſubſequent work into ſections, under the following heads. Firſt, of the culture of various kinds of ſoils; ſecondly, the beſt method of cultivating ſugar canes; thirdly, the beſt method of making ſugar; and fourthly, of making rum.

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* Mr. Bourke ironmonger of London, has the proper models of ſuch axle-tree irons; and alſo of clamps for cart tongues, better conſtructed to render them durable, than any now in uſe.

SECTION I.

SECTION I.

Of the Culture of various Soils.

IN the Britiſh ſugar colonies there is as great a variety of ſoils as in any country of Europe, ſome naturally very rich or fruitful, yielding a luxuriant product with little labour or culture. This fruitful ſoil is of three kinds: a looſe hazel mould mixed with ſand like that of St. Chriſtopher's, and is the beſt in the known world for producing ſugar in great quantity, and of the beſt quality. The brick mould of Jamaica is ſomewhat of the ſame nature, and next in value; and then the various mixtures of mould and gravel, to be found in veins or plats, over all the other iſlands. When any of theſe ſoils are exhauſted of their fertility, by long and injudicious culture, they may be reſtored by any kind of dung well rotted; for theſe * warm ſoils cannot bear hot unrotted dung, without being laid fallow for a conſiderable time after it. Another improvement is by ſea ſand or ſea weed; or by digging in the cane traſh, into ſteep lands and by letting it lie to rot for ſome months: a third method is by plowing and laying it fallow! and the fourth method (the beſt of all) is by folding the fallows by ſheep. But this can be practiſed only where there are extenſive paſtures; nor can the plow be employed where the ſoil abounds with large ſtones. In that caſe, however, the former method of digging in traſh will be nearly as effectual, tho' more expenſive, by hand labour, or hoe-plowing.

The next beſt ſoil for producing good ſugar is a mould upon clay, which if ſhallow, requires much culture and great labour, or produce will be ſmall in quantity, tho' of a ſtrong grain and bright colour, ſo as to yield moſt profit to the refiner, of any ſugar except that produced from an hazel or gravelly ſoil, as before mentioned. All the black mould ſoils upon marle are generally fruitful, and will take any kind of dung; but yield not ſo ſtrong, or large grained ſugar. Marle, however, of a white, yellow, or blue colour, or rich mould from waſhes, or aſhes † of every kind are excellent for every ſtrong ſoil, as the chief ingredient in the compoſt of dung; and either will do alone for ſtiff lands: but the yellow and chocolate marle are the moſt ſoapy, and the richeſt kind of manure (except fine mould) for all ſtiff lands. If theſe are well opened, pulveriſed by culture, and mixed with hot dung, or any kind of looſe earth or marle, they will produce as plentifully as lighter ſoils: and all kinds of clay ſoils, except that of a white colour, have theſe two advantages above the fineſt gravelly ſoils, that they do not ſcorch ſoon by dry weather, and never grow weary of the ſame manure, as moſt other ſoils do.

The extraordinary hand labour now beſtowed in making dung may be ſaved by the *art of caving* now in general uſe in England. Ten mules or horſes, and two light tumbrels with broad wheels and ten able negroes, may, by the common uſe of ſpades, ſhovels, and light mattocks or grubbing-hoes, make more dung, than ſixty able negroes can do in the preſent methods.

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* Thoſe ſoils which are naturally looſe and marle, I call hot ſoils; and theſe have been much injured here by dung haſtily made with marle, which is adding huſkineſs to huſkineſs, but if the ſediment of lees, were thrown into theſe pens, after being turned over, it would much improve the dung.

† The common neglect of preſerving aſhes from wet, renders them of no more value than barren ſand: for the great excellence of aſhes lies in the ſalts, which are diſſolved and waſhed away by rain,

If marle lies upon riſing ground, or in hillocks, as it often does, the pit is to be opened at the foot of the declivity; which being dug inwards, till the bank is three feet high, then it is to be *caved* thus. Dig an hollow ſpace of 12 or 18 inches deep under the foot of the bank, then dig into each ſide of it, another perpendicular cut of the ſame depth, and 18 inches wide, from the top of the bank to the bottom: that being finiſhed, make a ſmall trench a foot or two from the brink of the bank, pour into it water till full, and when that is done, fill it again, till the water ſoaking downward makes the marle ſeparate and fall down all at once. This may be repeated till the pit riſes to 50 feet high; and then many hundreds of cart-loads of marle may be thrown down, by 4 negroes in 2 hours; from whence it may be carted into cattle pens, or laid out upon lands, as occaſion requires: 5 or 6 negroes with ſpades or ſhovels will keep 2 or 3 tumberils employed according to the diſtance of cartage: and thus as much dung may be made by ten negro men, as will dung richly at leaſt 70 or 80 acres of land every year, and laid out alſo with the aſſiſtance of cattle carts. An improvement highly worth every planter's conſideration, when negroes and feeding them are ſo expenſive: and this is no ſpeculation, but is in fact my practice. In level lands the ſame operation may be as effectual, provided the mouth of the pit be opened by gradual deſcent to any depth: but when marle is to be found on the ſides of hills, the operation is leſs laborious for the horſes. But if the ſurface of the marle pits (as it often happens) be covered with clay, or ſtiff ſoil, ſo that the water cannot quickly ſoak from the trench above; in that caſe, pieces of hard wood made like piles, 4 feet long and 4 inches ſquare, pointed at one end, and ſecured at the other ſquare head, by an iron clamp, may be driven by heavy mauls into the trench, as ſo many wedges, which will make the caved part tumble down, but a ſkilful eye muſt watch the laſt operation, or the labourers may be buried or hurt.

But then clay ſoils that are level, and ſubject to be drowned, or to retain water in ſtagnated pools, can never be made fruitful by any kind of manure, without being firſt well drained: for water lying upon any ſoil will moſt certainly transform it to a ſtiff unfruitful clay: as appears evidently by the bogs of Ireland, the fens of Lincoln and Cambridgeſhire, and even by the ponds of this Iſland ſituated in the deepeſt and lighteſt black mold; for, that fine ſoil being waſhed into thoſe ponds, becomes the ſtiffeſt black clay, not fit even for an ingredient in dung, until it has been laid dry, and expoſed to the ſun for a whole year: but when theſe bogs and fens are well drained, they become the moſt fruitful ſoils. Natural clay the celebrated Boërhave thinks the fatteſt of all ſoils; but then it muſt be opened by culture, marle, or ſandy manures. It is hard to conjecture how the opinion prevailed here that ſandy gut-mould was moſt unfit for clay ſoils, as being the means of binding them to the compactneſs of brick; whereas it is evidently, from long experience, one of the beſt means of opening clay ſoils, and rendering them abundantly fruitful. Brick is made of clay alone, no ſand being uſed in it, farther than to ſprinkle the board on which it is moulded into ſhape. From my own repeated experience I can vouch with ſtrict truth, that a mixture of ſand in gut mold is the beſt of all manure for ſtiff and barren clay lands; provided they be well drained, by throwing the whole ſoil into round ridges of 12 feet wide, with furrows of three feet wide between each ridge: and this is done with little more hand labour, than that of hoe-plowing well in the common way: for if a piece of land be marked in lines at ſeven feet and a half diſtance from each other; and the labourers are ſet in to hoe-plow at the ſecond line, hauling back each clod twelve inches, half the ridge, and near half the furrow is made at the ſame time: and thus a piece of land may be round-ridged, and the furrows all made at once, by the common operation of hoe-plowing; provided the digger drives his hoe up to the eye at every ſtroke. Hoe-plowing in clay ſoils that have lain long under water is indeed hard labour; but it will every year grow the lighter by being well drained by round-ridging: and in the mean while the labour may be rendered much more eaſy by the plow, conducted by the lines above deſcribed; as therefore ſandy mold is the beſt manure for ſtiff clay; ſo by parity of reaſon, confirmed by long experience, ſtiff clay is the beſt manure for ſandy or chaffy ſoils.

The method of round ridging before deſcribed, is, by ſeveral years experience, ſince the firſt edition of this Eſſay, found the moſt eſſential improvement of flat clayey ſoils: and yet there are ſome ſcepticks, who will prefer ſpeculation to occular demonſtration, fancying that all kinds of ridges will carry off the mold in heavy rains. The fact is otherwiſe in clay ſoils; and plain reaſon without experience, vouches, that where great confluxes of water are divided into many ſmall rills, the force is broken; and therefore leſs mold carried off the land. Another objection made to round ridging is, that by digging much clay to form the ſides of the ridge, impoveriſhes the ſoil: but this objection ſtands good only againſt thoſe ridges which are raiſed too high, and made too broad: but if land is ridged in the manner before directed, that is 12 feet broad, and not above 6 or 8 inches higher in the middle than at the ſides, the objection vaniſhes. Ridges were never propoſed for light ſoils or ſteep lands: and even in flat ſoils upon loam, ſhould be made with great caution: becauſe *loam melts away by water*, as butter does by heat. But there are poachy lands of a white clay, even upon ſmall deſcents too retentive of water; theſe may certainly be improved much by ridges of 12 feet wide, as above deſcribed, without fear of waſhes.

But ſuppoſing, as the objection urges, that a little clay ſhould be turned up at the ſides of ſuch ridges; can it not be manured ſomewhat more than the other parts with marl, or ſandy mold, ſo as to become equally good, as any part of the ſoil? And is not this well worth the labour, ſince round ridging, not only improves the ſoil by draining it to a wonder; but adds one fifth part to the depth of the ſtaple? And will not a ridge made a little rounding, throw off the water much better than a flat ridge; Let the ſceptick anſwer theſe queſtions, and he will confute all his own objections.

The general maxim of not burning cane traſh (which may be called the ſtubble of cane lands) upon any kind of ſoil, is ſurely a great miſtake; as may be evinced by obſerving the contrary practice of the beſt huſbandmen in England, where *burn-baiting* or *baſtard-burn-baiting* is found by experience an admirable method of fertilizing cold, ſtiff, or clayey lands. It muſt be my conſtant practice, not only for the ſake of contributing to warm and divide the ſoil, but as the only effectual means of deſtroying pernicious inſects, and weeds of various kinds, ſuch as French weed, wild peaſe, and wild vines.

Soon after the diſuſe of burning traſh upon our lands in this iſland, I remember the Blaſt made its firſt appearance with incredible devaſtation: to revive that practice therefore ſeems to be the moſt obvious means of expelling it. It may be preſumed that the diſuſe of burning traſh, was founded upon the miſtaken notion of *burn-baiting*, which is turning up a thick ſod of very dry, light and ſhallow ſoils, and burning the whole ſuperficies, or ſtaple to aſhes. This practice the writers upon huſbandry condemn univerſally, and very juſtly: for tho' by this practice, the land will produce two or three crops more plentifully than ever, yet the ſoil is blown away by the wind, and the ſubſtratum being generally an hungry gravel, or chalk, can never be reſtored to fertility by the common arts of huſbandry: but ſurely this has no reſemblance to our ſuperficial burning of the little traſh we can ſpare from dung: and tho' this method of burn-baiting *light and ſhallow ſoils* be juſtly condemned, yet the beſt writers recommend that very practice, in cold, moiſt, and heavy ſoils, as is obſerved above; and long experience juſtifies it.

Deep mold upon clay or loam being ſubject to the grub-worm, * will not take any kind of dung, till perfectly rotten, except that of the ſheep fold, which is the beſt manure for all kinds of light ſoils, and is of all others the leaſt expenſive, as not requiring hand-labour. But the uſe of the fold is impracticable in any iſland not abounding with large ſavannas, or ſheep paſtures, as in Jamaica.

Thoſe ſoils therefore which are ſubject to the grub, and muſt be fertilized by common dung, which is a proper neſt for the mother beetle to depoſit its eggs, muſt be well impregnated with the brine of diſſolved ſalt after the dung is firſt cut up, two large hogſheads of ſalt will make brine enough for a dung pen of 50 feet ſquare.

This cure for the grub, is a late diſcovery for which I am obliged to a judicious planter, and which I have tried with ſucceſs, ſo far as the experiment is made. But tho' it proves effectual to deſtroy that pernicious inſect in plant canes; I much doubt, and believe it will not be ſufficient to ſave rattoons, without a new application of ſalt pounded to a powder; becauſe the firſt brine muſt be waſhed away, by the time when rattoons ſpring up.

I therefore adviſe the planter who would ſave his rattoons from grub, to cut off the heads of his ſtools by ſharp hoes three inches below the ſurface of the ſoil, and then ſtrew an handful of ſalt round each ſtool, and cover it up to a level with fine mold taken from the edges.

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* This pernicious inſect is moſt apt to engender in dung made from mill traſh, which therefore never ought to be put into dung compoſt, or ſtill ponds; but after being burnt, the aſhes will be as good as any other kind. Round ridging, with manure of unwet aſhes, ſea ſand, lime, or dry marle, kills the grub.

In ſoils where there is no grub, and the planter wiſhes to have very good rattoons, let him, ſo ſoon as his canes are cut, draw all the traſh from the ſtools into the alternate ſpaces, if planted in that manner; or into the furrows if his land be round ridged, and then cut off the head of his ſtools with ſharp hoes, as above directed. Actual experience has convinced me of the benefit of this practice, and reaſon led me to it, by ſhewing the great benefit of the rattoon ſprouts riſing from three inches below the ſurface, inſtead of ſuperficial ſhoots which came to nothing, and only ſtarve the ſtrong ſprouts. Beſides, the ſtubbs which are left upon the ſtools after the canes are cut, canker, and rot the ſtools, which is one reaſon why good rattoons are uncommon in ſoils long cultivated. Yet it is the opinion of a judicious friend, as well as my own, that by hoe-plowing and even dunging rattoons, the produce might be as good as plant canes, which would ſave the labour of holing and planting ſo often as we do.

Fallowing is of incredible advantage to every ſoil, not only by being divided into the minuteſt parts, but alſo by imbibing thoſe vegetative powers, with which the air is impregnated by the bountiful hand of providence, whenever rain falls. What thoſe powers are we can only conjecture; nor is it material for us to know, ſince experience evinces this fact, that the tender vegetables of the earth are envigorated more by the ſmalleſt ſhower of rain, than by all the water which human art can beſtow. Let it therefore be a conſtant maxim of the judicious planter never to plant his ground until the ſoil is well mellowed by fallowing, even tho' he beſtows upon it a due proportion of dung: I ſay a *due proportion;* for too much will force up rank canes which never yield good ſugar: and tho' ſome advantage may be reaped from the rattoons, yet it will be found by experience not to compenſate the loſs by the plants: for I have known an induſtrious planter diminiſh and debaſe his produce, to his own diſappointment, by overloading his ſoil with dung; which is in effect to grow poor by induſtry. In ſtony or ſteep ſoils where the plow cannot be uſed, or where a ſufficient ſtrength of cattle cannot be ſupported for that purpoſe, hand-labour, or hoe-plowing muſt be ſubſtituted: but even in that caſe, much labour may be ſaved, by ſpreading the dung according to the Engliſh huſbandry, and digging it into the ſoil. To evince this truth againſt the erroneous practice now in faſhion, let any planter compute his negroes labour of diſtributing dung by baſkets, and by ſpreading it with dung forks, and then judge for himſelf by one ſingle experiment, which is the moſt profitable.

But if ſome planters are ſo devoted to the old cuſtom of diſtributing dung by baſkets, inſtead of wheel-barrows in level ground, or hand-barrows in uneven land, by which three times the labour may be accompliſhed in the ſame time, and by the ſame hands, let them at leaſt ſave much of their hand-labour, by the following method of laying out dung, before the diſtribution by baſkets.

In holing a piece of land, let a *ſpace be left after eighty holes*, from the firſt interval; and then the like ſpace after eighty holes, throughout the whole plat, which ſpaces muſt run exactly parallel to the intervals, on the right and left of the holes. Into theſe ſpaces the dung may be carted even before it be rotten,[*] at the moſt leiſure times, and covered with mold, or cane traſh, to prevent exhalation; and in ſuch quantity as will ſuffice only to dung a row of forty holes, from the point oppoſite to each ſide of it. In the intervals at each ſide of the cane-piece, which are parallel to thoſe ſpaces, there muſt be dung enough carted, to manure a row of forty holes, and covered in like manner.

By thus placing the dung or gut mold, it is evident at the firſt ſight, that the fartheſt diſtance cannot be above forty holes in diſtributing the dung: and in caſe it be not ſufficiently rotten for preſent uſe, it may be diſtributed even in dry weather, and covered by the bank, which will both prevent its ſpirit from exhalation, and occaſion it to rot ſooner, which is no ſmall advantage. Moreover, by being thus laid out at the moſt leiſure times, and covered with the banks, the dung will be more intimately mixed with the ſoil, and therefore continue to nouriſh the plant for a longer time, than if laid as uſual at the bottom of the holes. A farther advantage of thus diſtributing the dung, and covering it, reſults from the more expeditious planting the land, after a ſhort or ſudden ſhower:[†] for the labour of covering the dung, and uncovering it when the land is planted, however it may appear in ſpeculation, is in practice a trifle: and beſides all the other advantages ariſing by the diſtribution of dung from the ſpaces above deſcribed, this is not the leaſt, that not a bank is trodden under foot. But it is evident, that by diſtributing the dung with baſkets in the preſent method, the ſoil is much trampled under foot, and by that means, the very end of hoe-plowing, or looſening the ſoil is much defeated. In like manner, by the preſent method of hoe-plowing, the ſame ill effect is produced; for as the negroes hoe-plow or dig the ſoil *directly forward;* ſo they muſt neceſſarily tread the ground as faſt as they dig it: whereas by putting the labourers to dig *ſideways*[‡], no one puts a foot upon the ſoil after it is dug: and by lining the land before it is hoe-plowed, each negro may have an equal ſhare to dig. Whether hoe-plowing before or after the land be holed for canes is moſt eligible, experience muſt determine; but certainly both operations will be moſt effectual; and therefore I beg leave to adviſe,[§] firſt to plow the ſoil where the land will admit the plow; and where it will not, to hoe-plow it with, or without dung, as requiſite; then let it lie fallow till perfectly mellowed; then hole and plant it; and inſtead of weeding in the uſual manner, let the weeds in all the ſpaces be dug into the ſoil: but as this is not to be done ſo well with the hoe, I ſubmit to future experience, whether the dexterous uſe of ſpades as in

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[*] In order to make dung rot the ſooner, much labour is beſtowed in digging and turning it over by hoes: but two-thirds of that labour may be ſaved by the uſe of hay knives, ſix of which uſed dexterouſly will cut up a pen in leſs time, than 60 negroes can do by hoes: but hay knives cannot be uſed where gritty mold is uſed in pens.

[†] Dung being a natural ferment divides the ſoil ſooner, and for a longer time, than by culture. It is needleſs to deſcribe the uſual methods of making ſtill-pond dung, or any other ſort; becauſe the meaneſt overſeer knows thoſe methods: let it ſuffice then to obſerve that the hotteſt kinds of dung are fitteſt for cold ſoils, and the cooleſt for hot; only I would caution the makers of dung to traſh their pens lightly, and lay the marle deeper than uſual.

[‡] The only difficulty of hoe-plowing ſideways is in firſt ſetting the negroes to that work; but may be done without loſs of time when working in a contiguous field.

[§] Deep and looſe ſoils may be plowed with a ſmall ſtrength of cattle or mules; but ſtiff lands in this hot climate require more ſtrength of cattle than we are able to maintain in our ſmall paſtures: for if thoſe ſtrong ſoils are either too wet, or too dry (as is generally the caſe) plowing is impracticable.

England, will not anſwer the purpoſe much better, and with equal diſpatch. But whatever method is preferred, moſt certain it is, that by looſening the ſoil in all the ſpaces between the young canes after being come up, their fibres will more eaſily expand on every ſide, and acquire more nutrition to envigorate their growth. But where the planter grudges this labour, by thinking it needleſs in a rich looſe ſoil, he may diſpatch more weeding work by the Dutch hoe, than by any other; which being faſtened upon the end of a ſtick, is puſhed forward under the roots of the ſmall weeds in ſuch a manner as to cut them up a little below the ſurface of the ſoil, and will do more execution at one ſhove, than can be done at three ſtrokes of the common hoe; as general practice evinces in all the gardens of England; but there is yet another practice of the horſe-hoe-plow, whereby all weeds growing in rows between beans and peaſe are extirpated with incredible eaſe and expedition, all over the county of Kent. It is a very ſimple machine drawn by one or two horſes, conſiſting of a pair of low wheels turning upon a common axis; from whence two ſquare irons are let down at equal diſtances, and triangular hoes made at the ends, the points of the triangles being placed forward, and ſo fixed as to cut all weeds an inch below the ſurface, in the ſame manner as the Dutch garden hoe above mentioned. By this machine a man and boy, with two horſes or mules, will clear perfectly all the ſpaces of a field of ten acres in two days, and may be of admirable uſe in all our looſe and dry ſoils: for while two horſes or mules draw in the ſpace before each other, the wheels paſs on the outſide of each row of canes, without doing the leaſt injury, while the plow-holder attends to his buſineſs. In ſtiff ſoils which require draining, I conceive neither the horſe-hoe-plow, nor the Dutch hoe can be proper; or any other inſtrument ſo effectual as the *ſpade* uſed in the manner above hinted, where the ſtaple is deep.

But where the ſtaple of land is ſhallow, there care muſt be taken not to dig much below it, according to the univerſal opinion of all the beſt writers, ſupported by the experience of an hundred years. Yet I find ſome good planters are fallen into the contrary practice; and dig up ſtiff clay far below the ſtaple. This was done in my own lands, during my abſence, by injudiciouſly plowing below the ſtaple; and ſo injured the ſoil, that with all the arts of culture for many years, hardly retrieved its former fertility. Indeed where the ſtaple is ſhallow, upon a fat clay, there turning up *a little of it at a time*, from the bottom of the cane holes, and mixing it with rich hot dung made of marle, or ſandy mold, which may take off its coheſive quality, will in due time, and by long fallow, be converted into good ſoil: but if ſtiff clay be turned up, without any ſuch mixture, in large quantities, it will infallibly diſappoint the operator's hopes: for tho' ſolid clay will moulder by expoſure, to a ſeeming fine earth, yet it will return to its primitive ſtate very ſoon after being wet, and covered from the external air, if not divided, as above ſuggeſted.

After all, the common horſe-hoeing-plow, * drawn by two mules in a line before each other; or the hand-hoe in common uſe, will anſwer the purpoſe very well, where the lands are planted in Mr. Tull's method; that is, where the ſpaces are equal to the land planted, in the following manner.

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* It is wonderful that the horſe hoeing-plow has not been uſed in all the looſe ſoils of this country, when by that means infinite hand labour may be ſaved: indeed it cannot be uſed ſo commodiouſly in the cloſe way of planting, but the ſpaces of alternate double rows is admirably fitted for it.

Suppoſe ſix feet planted in two rows of canes and ſix feet of land left as a ſpace unplanted; and ſo a whole piece of land, planted in alternate double rows,[*] with equal ſpaces, may be hoe-plowed with eaſe, as before hinted; and that at any time during the growth of canes, when it is moſt convenient to the planter, which is a conſiderable advantage; and yet it is the leaſt of all attending this admirable method of culture: for, by leaving theſe ſpaces, the canes will have both more air and ſun: by hoe-plowing them, the roots of each double row will have large room, for expanſion, and conſequently, by gaining more nutriment, will grow more luxuriantly: by theſe ſpaces the canes may be cleaned from the blaſt with much more eaſe and convenience; and will ſerve as proper beds to plant great corn, without the leaſt injury to the canes; as well as to contain the traſh taken off the land, where by rotting, and being hoe-plowed into the ſoil; it will be wonderfully enriched, and well fitted to be planted immediately after the canes in the neighbouring double rows are cut down. Beſides all theſe admirable advantages of planting the land in alternate double rows with equal ſpaces, the canes, when at full age, may be eaſily ſtripped of their traſh, and by that means the juice rendered ſo mature as to yield double the produce, and much better ſugars than unſtripped canes, as I have often found by experience. This method of culture I therefore earneſtly recommended for all kinds of ſoil; for as by this practice the rank luxuriant canes will be more matured; ſo the poor ſoils will be rendered more fruitful: and as the roots of the canes which expand into theſe ſpaces will be kept moiſt, by being covered with rotten traſh; ſo they muſt bear dry weather much longer in the burning ſoils[†]. In thoſe low lands which require draining by furrows, the alternate double rows and ſpaces muſt be made croſs the ridges, by which means, thoſe ſpaces being hoe-plowed from the center to the ſides, will be always preſerved in a proper ſtate of roundneſs.

How well ſoever the method of planting in ſingle or double alternate rows has ſucceeded in the looſe and ſtiff ſoils, two years experience ſince the former Edition of this Eſſay, has convinced me, that it is a wrong practice in ſtiff lands, that are thrown into *round or flat ridges*: for theſe being moſt apt to crack, the ſun beams penetrate ſoon to the cane roots; ſtop their growth, and have an ill influence upon the ſugar. I therefore adviſe planting ſuch lands full, but in large holes, of four feet, by five feet towards the banks: after the plant canes are cut, to dig out one, and leave two rows ſtanding, hoe-plowing the ſpaces after turning all the traſh into furrows till almoſt rotten: for if the traſh is drawn upon the hoe-plowed ſpaces they will hardly ever moulder; at leaſt not till the traſh is quite rotten. This is an infallible proof from experience, of how little advantage traſh is to the ſoil, unleſs it be in great droughts, to keep out the intenſe ſun beams:

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[*] In ſtiff lands the *ſingle alternate rows* of 4 feet diſtance as preventive of much labour in weeding, are found beſt; and alſo yield more ſugar by the acre; and are leſs apt to be affected by drought.

[†] By this method of planting the canes may be ſo well ripened as to yield double the quantity of ſugar, of canes planted in the cloſe manner, which ſaves half the labour of cartage, half the time of grinding and boiling, and half the fewel, beſides yielding finer ſugar.

for, in all other reſpects, it prevents that joint operation of the ſun and air, in mouldering, and fructifying the ſoil, as I have proved by repeated experiments.

But in flat ſtiff ſoils that are properly drained by round ridging, no culture prevents *cracking* ſo effectually, as hoe-plowing into them a quantity of looſe marle, of which that of a chocolate, and a yellow colour, are beſt: and will be ſtill much better, by lying upon the land, in ſmall heaps, or in cane holes, for ſome time, to imbibe the vegetative powers of the air, before it is intimately mixed with the ſoil: for when the beſt kind of marle is firſt dug, it is but dead earth, unfit for vegetation.

Since the ſpirit of huſbandry has appeared in this iſland, a vaſt variety of excellent manures have been diſcovered, even in ſtiff lands, where it was leaſt expected and moſt wanted: as if the author of nature meant to convince mankind, that the greateſt induſtry ſhall receive the greateſt reward: and that the pooreſt lands have in them, the beſt means for fructification. Theſe numerous diſcoveries are a juſt encouragement for a ſtrict ſearch by borers in every ſoil not rocky. Seek and ye ſhall find, ſeems to be as true in huſbandry, as in divinity.

It is needleſs here to deſcribe the manner of planting canes, ſince the general practice of allowing four feet by five, to an hole, and two freſh[*] plants, is found by common experience to be right and good in alternate rows: for, this little tract is not deſigned as a complete ſyſtem of plantership, but only an eſſay to farther improvements, and to reform the groſs and common errors now in practice. For the ſame reaſon therefore little more ſhall be added to the ſubject of planting and cutting ſugar canes than a few precautions. Firſt, let all the cane-rows run eaſt and weſt, that the trade wind may paſs freely thro' them; becauſe air and ſunſhine are as conducive to the growth and maturation of ſugar-canes, as any other vegetable. Secondly, let not any acceſſion of mold be drawn into hills round the young canes, except where water ſtagnates[†]: becauſe the fibres which run horizontally, and near the ſurface, are much broken and ſpoiled by that practice. Thirdly, let the ſugar-canes be cut at their full maturity, which in dry looſe ſoils, is generally at the end of fourteen or fifteen months after being planted; but in cold clay ſoils not till ſixteen or ſeventeen months. Fourthly, as the cane-rows run eaſt and weſt in as proper a direction as poſſible for cartage to the ſugar-work, ſo canes muſt be cut the contrary way if the planter expects any great produce from his rattoons: for by beginning to cut canes at the part of his field moſt remote from the works, the carts cannot often paſs over the ſame track; and conſequently the cane-ſtools cannot be injured; more eſpecially if he takes due care to cut the canes very cloſe to their roots: for, by leaving a long ſtub (which muſt periſh) the cane ſtools are much injured. It may be objected to the practice of cutting canes tranſverſely to the rows, that the negroes labour will not be ſo equally divided; but let every man conſider both ſides of the queſtion, and be determined by his own experience; and then he will be convinced, that it matters very little which way he cuts ſtrait-ſtanding canes; but in caſes where ſugar-canes lean, or are lodged by preceding high winds, it is a point of great importance to place the labourers ſo as to cut the canes *firſt at the roots*, and then drawing them, cut off the tops: for thus by two ſtrokes each cane will be cut; and twice the quantity cut in the ſame time, and by the ſame hands, more than by cutting in any other direction[*].

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[*] It is an odd fancy that ſtale plants grow beſt, when both reaſon and experience vouch that the moſt ſucculent plants are beſt: one good plant in the center of a large hole is ſufficient when the land is full holed.

[†] The ſtagnation of water in pools (uſual in ſtiff level lands) is the moſt injurious circumſtance attending it; for that, by long duration, will convert the fineſt mold to ſtiff clay. The proprietor of ſuch a ſoil muſt therefore grudge no labour to drain it well; and yet by ſuch eaſy gradation, as to prevent the mold from being waſhed away by great floods, in caſe the under ſtratum is a loam.

It is alſo needleſs to ſuggeſt the expediency of planning the cane-pieces of a plantation in exact ſquares, ſo that the intervals may interſect at right angles; ſince ſuch regularity is not only more beautiful; more ſafe in caſe of accidental fires; and a better diſpoſition of the whole for dividing and planting *one third or fourth part* of a plantation every year; but alſo much eaſier guarded by a few watchmen; for, one of theſe walking in a line from eaſt to weſt, and the other from north to ſouth, look thro' every avenue, where the moſt ſubtil thief cannot eſcape the watchful eye. And if the intervals ſurrounding the boundary of a regular plantation be made twenty-four feet wide, the proprietor will receive ample recompence for ſo much land; by the ſecurity of his canes from fires kindled in his neighbourhood; and by planting all that land in plantain-trees, which may at once yield *food* and *ſhade* to the watchmen; who by that means can have no excuſe for abſence from their proper ſtations. But as fewel grows very ſcarce in moſt of our iſlands, it is alſo expedient to plant a *logwood*[†] or *flower-fence* in all the boundaries of every plantation, which being cut every year, will furniſh good ſtore of faggots, as by its perennial growth much contention will be prevented among neighbours, by preſerving exactly the old boundaries; a point well worthy the attention of every honeſt man who loves his whole ſpecies, and wiſhes to live in amity with every individual of it. Our lands being thus diſpoſed in regular order, and manured according to the nature of the ſoil, let us now proceed to the ſecond head propoſed.

SECTION II.

Of the beſt Method of cultivating Sugar-canes.

IT is neceſſary before we enter upon this ſubject, to remind the reader, that the various methods of culture above ſuggeſted, require at leaſt twelve negro men, and twelve yoke of able oxen, more than are wanted for the other uſes of a large plantation: for, if ſo much dung, the ſpreading of marle, and long fallowing, be neceſſary to improve the ſoil, theſe muſt be employed during crop-time for thoſe purpoſes, under the direction of a ſkilful huſbandman, who may teach his labourers the dexterous uſe of the ſpade and dung-fork: for, by that means four negro men will load a cart with earth or dung in leſs time than ten women can do with baſkets, according to the preſent cuſtom. Thus all the cattle-pens may be ſupplied by carts with plenty of earth or marle during dry ſeaſons, and great quantities of dung made ready to be ſpread and plowed into the ſoil, when moiſt weather invites, without hindering the progreſs of the crop; provided the mold be diſtributed by wheel-barrows [*]: thus alſo a great quantity of ground ſo prepared may lie fallow for a conſiderable time, and be fit for planting at the firſt of the ſeaſon, which is the ſureſt method of ſecuring an early and plentiful crop, as every judicious planter knows by experience.

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[*] In round ridged land it is moſt proper to cut canes in the ſame direction of the ridges, throwing the tops and traſh into the furrows to render the cartage eaſy and to preſerve the ridges in their proper form.

[†] Logwood makes the ſtrongeſt and quickeſt of all fences, and agrees with every ſoil: the cuttings make excellent oven fewel.

In ſtiff ſoil where canes require moſt age, half the quantity of land intended for the crop ſhould be planted in September: but in hot looſe ſoils in October and November: and the whole planting ſeaſon conclude with the month of January or February, [†] when the tops of the firſt canes cut, may furniſh the laſt pieces planted. By ſtrict obſervance of this method, the canes will be at full maturity in the proper ſeaſon for yielding moſt ſugar, which is from the firſt of January (if the weather permits) to the 29th of July. But by grinding later, we hazard not only the deſtruction of our wind-mills by hurricanes, but make bad ſugar, at infinite expence of time and labour, both of negroes and cattle, when the juice of canes becomes weak and wateriſh. There is not therefore a greater error in the whole practice of planterſhip, than to make ſugar, or to plant canes at improper ſeaſons of the year; for, by miſmanagements of this kind every ſucceeding crop is put out of regular order, tho' a plantation ought to be conſidered as a well conſtructed machine, compounded of various wheels, turning different ways, and yet all contributing to the great end propoſed: but if any one part runs too faſt or too ſlow in proportion to the reſt, the main purpoſe is defeated. It is vain to plead in excuſe the want of hands or cattle; becauſe theſe wants muſt either be ſupplied, or the planter muſt contract his views, and proportion them to his abilities: for the attempt to do more than can be attained, will lead into perpetual diſorder, and conclude in poverty. Indeed when ſevere droughts or unſeaſonable rains happen contrary to the general courſe of nature, the wiſe planter muſt do the beſt he can, chuſing always the leaſt of two evils.

The land being well manured, and mellowed by fallowing, let it be lined into ſpaces of four feet diſtance, and then holed either backwards or ſideways, [‡] as the manager thinks beſt, taking particular care that the cane-holes be made ſquare at the bottom, and heaping the banks high, ſo as to take up little ſpaces. After holing, the land ſhould lie in that poſture until every little lump crumples into fine mold, and then be planted before weeds ſpring up in any great abundance; for if planting in due time is neglected, the ſoil ſubſides, grows compact again, and defeats much of all the former tillage. The land being thus holed, and mellowed by fallowing, let two good plants be put into each hole at equal diſtance from the centre: for if many plants be put into an hole, the ſprouts will riſe too plentifully, ſo as to hinder each others growth, and produce very ſmall ſpindling canes, which can yield but little ſugar; for ſugar-canes (as has been intimated) require more air and ſun ſhine than moſt other vegetables.

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[*] When carts cannot carry mold into the pens, then wheel-barrows may be ſubſtituted to ſave intolerable labour in the uſe of baſkets. By thoſe wheel-barrows dung may be laid out in the holes to great advantage, ſince one negro may carry four or five baſkets of dung.

[†] In light luxuriant ſoils, canes planted in April or May often produce largely: but it ſeems not prudent to delay ſo long, for fear of diſappointment by drought.

[‡] If the holes are made 4 feet wide one way, and 5 feet from bank to bank, the bottom of the hole will be a true ſquare.

The plants being thus placed in each hole, with the eyes horizontally, muſt be covered, in looſe dry ſoils not above two inches deep, but in ſtiff ground one inch is ſufficient, leaving the banks to be added by ſmall acceſſions at every weeding, and the one-third to be reſerved for covering the ſtools of the rattoons, which will much forward their growth: but let the common cuſtom of drawing mold into hillocks round each ſtool of young canes be avoided; becauſe that practice breaks the young ſuperficial fibres, and leaves them bare to periſh by the ſcorching ſun. Stiff or clay ſoils, if well drained in the manner before directed, may be planted hollow, as the lighteſt, to the ſame advantage; for I am very certain that covering the ſtools of rattoons with one-third of the bank left for that purpoſe, is preferable to hoe plowing alone. As ſuch level ſtiff ſoils free from ſtones are moſt improveable by the plow, * the huſbandman's chief care ſhould be to plow the land into ridges, as before directed, riſing gradually from the ſides to the centres; for, then the rain water will paſs off with eaſe thro' the furrows, and ſave all the hand labour of draining except ſmall trenches round each field, thro' which the water may paſs gently without waſhing away the mold: for, where all preceding arts are practiſed to pulveriſe the ſoil, peculiar care muſt be taken to prevent its waſhing away by floods of rain; or the land will ſoon become barren.

It has been ſuggeſted before, that two good plants are ſufficient for an hole of the dimenſions above mentioned: but in ſmaller holes one only is uſed by ſome judicious planters with good ſucceſs. Drawn plants from rattoon-ſprouts of ſix or eight months old are very good; and in ſome reſpects preferable to the tops of old canes, as having ſhort joints, and of courſe more eyes, and plumper than the others. It is however, generally obſerved, that the tops of old canes are the hardieſt plants, capable of bearing the extremity of dry or wet weather, better than any other; but if the fibrous roots of drawn plants are cut off, no man will have reaſon to complain. He, therefore, that for the ſake of tops, will reſerve old canes, and grind the bottoms out of the natural ſeaſon for making ſugar, at the riſque of deſtroying his wind-mill by hurricanes, acts as wiſely as the miſer, who loſes a pound to ſave a penny. To uſe the tops of grown canes for the laſt pieces planted, from January to May, is very good management: but drawn plants will anſwer perfectly well at all other ſeaſons of the year, and of theſe an abundance may be provided by a right forecaſt, if unſeaſonable droughts do not prevent: and

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* The plow I find by experience in the ſtiff ſoils of this climate is impracticable becauſe ſuch ſoils are either too wet or too dry for the purpoſe: and it requires more ſtrength of cattle and horſes than our ſmall paſtures can ſuſtain: but all our light ſoils are plowable at any ſeaſon of the year with a few draught beaſts. Indeed if dung is laid out by carriages as before adviſed, it will be a full employment for our cattle and mules, without the uſe of the plow.

good allowance muſt be made for ſuch events. For forecaſt is a prime qualification of the good planter in that and all other caſes. By that he divides his plantation into *three*, *four* or *five* equal parts, in proportion to his ſtrength of hands and cattle; allowing one-third, fourth, or fifth part to be planted every year: and if he contrives to cut plants always from a contiguous field, much cartage in wet weather will be prevented: much of his negroes time ſaved in paſſing from one diſtant field to another, and ſtill more if mules are employed to carry plants.

But after all this care in the preceding proceſs, ſure diſappointment will attend the planter who neglects timely weeding his young canes, which by once being over-run by weeds, will be ſo ſtinted as never to become very good, by any ſubſequent helps: let therefore every manager be as careful and nice in preſerving his canes clean from all weeds, as the Floriſt is of his Parterre; poſtponing every other work, when that calls for his labour: and inſtead of ſcraping up theſe weeds with common hoes, according to the preſent practice. he could employ the Kentiſh hoe-plow, infinite hand-labour may be ſaved: or if the nature of his ſoil be ſtiff or ſtony, ſo that the hoe-plow cannot be uſed, I am perſuaded that by digging all weeds into the ſoil with ſpades or hoes, and looſening it by that means as gardeners do in England, the ſugar-canes would be ſo envigorated as to recompence the labour beyond our preſent conception. No devaſtation by that pernicious inſect called the blaſt could then take place. All the ſchemes hitherto propoſed for curing that evil, that fore-runner of the planter's ruin, are vain, impracticable ſpeculations, or waſte of time and labour to little purpoſe: for, as human wit penetrates no deeper than the external ſurface of matter; ſo we cannot trace the influence and effects of material bodies acting upon each other one ſtep farther than experience, or apparent real fact is our guide. [*] If then it be a *fact* that the blaſt commits moſt ravage in poor land, and affects not the luxuriant ſugar-canes of a rich ſoil; the cure of the evil is certain and obvious; *manure* and *cultivate* your lands ſo as to become rich and fruitful, and you will prevent the blaſt; more eſpecially, if (according to the Engliſh huſbandry) the produce is changed, by planting potatoes, yams, or corn in dry ſoils; and eddas or potatoes, in ſtiff lands: for by theſe arts the planter may be ſure (if favoured by natural ſeaſons) of canes that will reward his labour by plentiful crops of ſugar; and it muſt then be his intereſt by ſkill and care to make it as good as poſſible, which ſhall be the ſubject of the following ſection, after having given ſome new directions for the cultivation of rattoons.

It has been obſerved above, that the ſtools or roots from whence canes are cut, are apt to corrupt, at the parts left above ground, and theſe of courſe canker the whole ſtool; hence it is that rattoons, or canes ſpringing from thoſe ſtools are ſeldom very good, except in very rich ſoils; and therefore ſome good planters, to prevent thoſe ſtubs above ground, draw their canes for ſugar from the roots, which I believe effectual, but very laborious: but by a late experiment, it is found a leſs laborious method, after uncovering the ſtools, by taking off the traſh, ſo ſoon as the canes are carried out of the field, to cut by a ſharp hoe, all the *heads* of the cane ſtools, *three inches below the ſurface* of the ſoil, and then fill the hole with fine mold; by which means all the ſprouts riſing from below, derive more nutriment and grow with vigour far beyond my expectation, and that of many other Gentleman who have ſeen them.

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[*] It is certainly a miſtake to ſay that the blaſt infects not the canes of a rich ſoil. The contrary I know to be true by experience: and therefore the beſt and only effectual cure is wiping the blades by wet cloths, until wet weather completes the cure.

This method I therefore recommend as a ſure means of having good rattoons, even in lands not very luxuriant: and from hence I am led to believe, that rattoons treated in this manner, and the ſpaces between the rows well dunged, and hoe-plowed, would be leſs laborious and much more profitable to the planter, than the frequent holing and planting now in practice, and eſpecially to thoſe who labour in ſtiff ſoils, or have few hands. Nay, I am perſwaded if this practice of laying dung among the alternate rows of rattoons, were tried in the looſe huſky ſoils, it would anſwer beyond expectation; the canes would be leſs apt to burn, and the dung might be put into the ſoil much newer, provided it be well hoe-plowed in, and intimately mixed with it. The trial of a few acres cannot be much expence to any man, and is therefore worth the labour.

Perhaps the deep ſoils upon a loam, ſubject to the Grub, which now cannot produce rattoons for that pernicious worm, might, by laying round the ſtools, dung well impregnated with ſea-water, or brine made from ſalt, be productive of the beſt rattoons; for it ſeems probable, from ſome experiments now in hand, that dung thus brined, after being cut up, will deſtroy that devouring inſect.

But this future experience muſt determine, and that ſuch trials may be attempted, the reader is to be told, that forty buſhels of ſalt diſſolved in water, to a ſtrong brine, and equally diſperſed over a dung pen of ſeventy feet ſquare and three feet deep, is the proportion obſerved in the experiments now promiſing ſucceſs.

SECTION III.

Of the beſt Method of making Sugar.

IN making good ſugar there is a great variety of incidents, of which if any one fails, the end is abſolutely fruſtrated; the wiſe planter therefore muſt be very attentive to every minute ſtep throughout the whole proceſs. It muſt be his firſt care to keep his mill in perfect good order,[*] ſo that common accidents may not retard his crop in the ſeaſon, when canes yield the moſt and beſt ſugar; every part of his works muſt be very clean and his coppers hung ſo judiciouſly, as to boil perfectly well with little fewel; for, nothing contributes more to the making of good ſugar, than quick boiling, after the cane-juice is well clarified. To this end therefore the great coppers, or firſt clarifiers, ſhould be hung ſingly, or to ſeparate fires, and pinned about ten or twelve inches from the bottom; that the ſcum may be ſeparated by ſlow degrees, and kept floating upon the ſurface long enough to be taken off perfectly: for, if the liquor be ſuffered to boil with violence, the ſcum will incorporate again with it, and never after be ſeparable but by the refining pan: and thus dark foul ſugar is made of that cane-juice which might have produced, by good management, fine bright ſugar of much greater value at the market. This is a point of great importance to every planter, whoſe profit depends much upon the goodneſs of his ſugar: for, the worſt pays the ſame freight, duty, and charges as the very beſt.

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[*] It is a ſurpriſing remiſſneſs now timber is ſo exceſſively dear, to expoſe our ſtocks, ſhafts, and the ends of our crown-trees to the ſun and rain during the whole winter ſeaſon, when ſuch expoſure is ſo eaſily prevented.

The cane-juice therefore, after being ſtrained at the mill thro' a braſs wire ſieve, ought to run down to the boiling-houſe in ſpouts lined with lead, to preſerve it from tainting[*]; and being let into the firſt clarifier, muſt be there boiled over a moderate fire until perfectly freed from all ſcum: afterwards it muſt be ſtrained thro' a thick coarſe blanket, and then boiled to ſugar with all poſſible celerity. But let the coppers be ever ſo judiciouſly hung, the liquor cannot be boiled with due quickneſs, unleſs the manager takes peculiar care to provide great plenty of *dry fewel,* or mill traſh: a material circumſtance in which there is a moſt abſurd and general remiſſneſs. The good planter therefore will lay up a ſtock of bruſh-wood cut from the hedges of his boundary before the crop begins; or if he has plenty of wood, enough to ſerve the uſes of his ſtill-houſe; by which means he may ſoon lay up a large fund of mill-traſh, and pack it either in ricks, or in a large traſh-houſe, that the progreſs of his crop may not be hindered by every ſhower, or his ſugar ſpoiled by dull fires.

But how can fewel be preſerved from wet where there are not tight ſhades over the copper-holes? and how came it to paſs that theſe ſhades are taken away, or ſuffered to decay? Is it for fear of fire? That indeed is prevented effectually by water-ſoaking the fewel with every ſhower: but ſurely this is to incur certain, conſtant injury, for fear of that which is accidental, and may be always prevented by common care: for, beſides wetting the fewel, we deſtroy the health of thoſe negroes who make fire, by expoſing them to all the extremities of a burning ſun, and to every little rain from the dripping eaves of a boiling-houſe. Theſe are abſurdities that want a name; or have ſuch as decency cannot uſe. But every paſſenger who obſerves a boiling-houſe without a ſhade, muſt certainly conſider it as a monument of the [†] manager's folly, who either wants a good head, or a good heart, or both.

The judicious boiler's next care is to provide [‡] quick-lime of the beſt ſort to temper his liquor; for, otherwiſe the ſugar will be clammy, than which it cannot have a worſe quality. That defect in ſugar ariſes from two very different cauſes; for, ſlow boiling, and bad temper-lime have the very ſame effect. The lime made from marble, or any other land-lime-ſtones, is the ſtrongeſt, and preferable to that made from white ſea-coral; and the newer it is from the kiln the better: for, by keeping it in the tighteſt caſks for any long duration, ſome of its good qualities evaporate; and therefore in the daily uſe of it the air muſt be excluded.

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[*] Mill-ciſterns and all receivers through which cane-juice paſſes ſhould be lined with lead; becauſe wood ſoon taints it, and the greateſt artiſt cannot make the beſt ſugar with tainted juice.

[†] By the word manager is evidently meant the chief director of a plantation, whether he be the overſeer, his attorney, or prime agent.

[‡] Having tried the pearl-aſh in a variety of experiments, both in muſcovado and clay'd ſugar, I muſt confeſs it anſwers no good purpoſe. On the contrary it never fails to weaken the grain of ſugar, and to impart its own quality of diſſolving by expoſure to the open air.

It is impoſſible to preſcribe exactly the quantity of lime neceſſary for every ſort of cane-juice*. Experience only can teach this art. It is however, a good rule in general to give a full quantity, which can only be determined preciſely, by the firſt ſugar made: but by dipping a ſkimmer into the tech, when the liquor is boiled to near a ſyrup height, and by giving it two or three quick twirls, and then hanging the edges of it downwards, an obſerving eye will diſcern the liquor falling from the ſkimmer in glaſſy fleaks. If theſe hang long, the liquor is not ſufficiently tempered; but if ſhort, breaking near to the edge of the ſkimmer, it is tempered enough. When cane-juice is tainted by exceſſive drought, ſo as to make foxy, bad ſugar, there are various methods in uſe of extracting the taint. Among theſe I never found any ſo effectual as by high tempering the liquor, and when it is boiled to a thick ſyrup, throw into the tech two or three gallons of fair water, which by ſudden ſolution, throws up the taint, or viſcous ſcum (conſiſting of the lighteſt particles) upon the ſurface, from whence it muſt be ſkimmed off with all expedition, and reſerved for diſtillation. By this practice, which I inferred from ſimple reaſon, it has been my good fortune to do ſignal ſervices for ſome of my friends; and I dare affirm it to be a very effectual method of making ſtrong bright ſugar, from cane-juice very much tainted, provided it be rich, or at full maturity; but if the ſugar-canes are much tainted while the juice is wateriſh all attempts to make good ſugar of it are vain and fruitleſs: for, then it is fit only for diſtillation. Indeed a ſtrong or large grained ſugar cannot by any art be made from wateriſh juice, even tho' untainted by drought: and therefore, when the judicious planter finds his cane-juice of that ſort, let him ſtrip his canes from all the traſh, ſuffering them to ſtand for 6 weeks expoſed to the air and ſun, and he will find that labour amply recompenſed by a large product of very good ſugar, as experience has often evinced.

After duly tempering the cane-juice with the ſtrongeſt quick lime, clarifying it over a moderate fire, and ſtraining it as before deſcribed, let it be boiled with the utmoſt quickneſs to a middling ſugar height, which will give it a large grain, and a fair colour, never failing qualities to procure the beſt price at market. This art of boiling ſugar, tho' of the greateſt importance to every planter, is (I know not by what means) generally leaſt underſtood either by overſeers or their maſters; but that point of greateſt conſequence is truſted wholly to the ſkill of negro-boilers, who indeed arrive by long habit to ſome degree of judgment by *the eye only*. To that eye art I have attended with all diligence, but could never acquire a critical exactneſs: for, the ſight, of all the other ſenſes, is moſt fallible, and ſubject to deception: a little more or leſs butter thrown into the tech will alter the whole appearance, and often deceive the moſt attentive and experienced eye; and no doubt there are other cauſes leſs obſervable, which produce the like effect; and therefore I recommend boiling by the * *touch* alſo, which is abundantly more certain, as *two* witneſſes are better than *one*.

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* I have obſerved that five ounces of the beſt quick-lime are ſufficient for 100 gallons of good cane-juice. Inſtead of increaſing the quantity of lime, I would adviſe the uſe of powdered allum, one quarter of an ounce of which, or leſs, to a ſtrike of ſugar, will give both firmneſs and largeneſs of grain: experiment will ſoon determine whether more or leſs allum will be requiſite.

To impart by words the knowledge of ſugar boiling by the *touch* is as impoſſible as to teach any other mechanic art, which can be attained by practice only: however, to convey the moſt adequate idea I am able, let the reader pardon the tediouſneſs of ſuch a dry deſcription, and obſerve this art of boiling by the touch is called by refiners *taking proof*. The method of doing it is by a pan-ſtick, of four feet and an half long, eighteen inches of which is made rounding for the graſp of the left hand, and three feet flat-wiſe, about two inches broad and an inch thick: by immerging this pan-ſtick into the liquor when boiled to a pretty thick conſiſtency, it will be ſmeared, upon which the boiler puts his right thumb, taking up a ſufficient quantity, and touching then the thumb with the fore-finger, draws the liquid ſugar like a thread at the inſtant when the heat is going off: this thread when broken will ſhrink from the thumb to the ſuſpended fore-finger, in ſeveral lengths as the boiler intends: for the different lengths at which this thread hangs to the fore-finger, determine preciſely the different degrees of boiling ſugar; and theſe degrees are proportioned to the ſeveral ſizes of moulds, or ſugar pots in which it is cured. The denominations by which theſe degrees are determined by refiners, are, *piece*, *lump*, and *loaf-height*. *Piece-height* is the higheſt degree, and ſuited to the moulds of the largeſt ſize, which contain about nine gallons: the thread of *piece-height* is about three inches long: that of *lump-height*, ſuitable to moulds of half the former ſizes, is when the thread ſtands at about an inch from the ſuſpended fore-finger: and *loaf-height*, ſuitable to the ſmalleſt moulds, is determined by the thread of a quarter of an inch long from the ſuſpended finger: and this *latter proof* is generally moſt ſuitable to the planter's purpoſes of making muſcovado ſugar; which ought to be of a large grain, well ſeparated from melaſſes. It has been ſaid above, that the boiler muſt take a ſufficient quantity of the liquid ſugar upon his thumb, to make an exact proof. That ſufficiency cannot be expreſſed in words preciſely, but muſt be juſt enough to allow the drawing of a thread, and not more; for, that will occaſion ſome deception. In like manner, if the thread is drawn at any other time than at the critical moment when the heat of the liquid ſugar goes off the thumb, the boiler will be deceived; for, if the liquid ſugar is either too hot or too cold when drawn into a ſtring, it will vary the appearance. In taking proof, the young learner muſt expect to bliſter his thumb, which he will think a ſmall fine for ſo profitable a purchaſe: but to give him as little pain as poſſible, when he takes up the liquid ſugar let him obſerve to keep his finger and thumb nimbly moving from and to each other in gentle contact, and then draw the ſtring at that inſtant when the intenſe heat is going off, by which means he will ſave his thumb from bliſtering and obtain an exact *proof*, according to the rules above preſcribed.

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* The art of boiling by the touch has been made a myſtery not to be imparted to negroes; but I do aver the contrary from experiment.

The method of boiling muſcovado ſugar I have ſaid is below loaf-height *, and if then it is cooled with quickneſs in a broad ſuperficies and in a wooden cooler, the ſugar will be of a larger grain than if cooled in a deep or copper veſſel, as experience evinces. But if the ſugar is intended to be cured in pots or earthen moulds, it muſt be cooled in copper, or deep wooden coolers, that it may be conveyed from thence into the pots, while in the ſtate of a thick liquid. This will occaſion the grain of ſugar to be *ſmaller* (and more ſpecially if judiciouſly ſtirred while in the cooler) which is an advantage to the colour of clayed ſugar: for, a multitude of ſurfaces will reflect more rays of light, and conſequently appear *whiter* than larger particles, which have fewer ſurfaces. For that reaſon the moſt expert planters of Barbados generally boil their ſugar higher than other people; but whether to ſo much profit, muſt be determined by future experience: for, if a much leſs quantity of very white ſugar is obtained by boiling high, than by the contrary method, the queſtion is whether the greater price is an adequate recompence for ſo great a loſs of weight. In my humble opinion it is not: however, it is worth the trouble to determine that point by exact weight and meaſure. In ſuch computations the refined Barbados managers exceed all our Iſlanders. From one of theſe I have ſeen a receipt in form more exact, than that of a good houſewife for making a pudding, but by no means equal to it in effect. That celebrated manager preſcribes thus: "take ſo many pounds of good clay and make it into "a batter with ſo much water, and then put it to ſo many pounds of ſugar, con"tained in a pot of ſo many gallons, &c."

Can any man be the wiſer for ſuch a receipt with all the appearance of exactneſs? on the contrary, experience teſtifies this plain truth, that the quantity and thinneſs of clay-batter muſt be exactly proportioned, *not to the quantity of ſugar*, ſo much, as to the degree of height to which it is boiled, which the *face*, or ſurface of the ſugar in each pot muſt determine: for, if the cruſt breaks near the center, the ſugar is high boiled, and will require a thiner batter; and ſo *vice verſa*, the nearer to the edge of the pot the ſurface cracks, the thicker muſt be the clay: for, clay batter is only the means of filtering the water thro' the ſugar by eaſy degrees, ſo as to waſh all the grains from all the yellowneſs, or tinge of melaſſes, without diſſolving the ſmalleſt particles. In this proportion therefore conſiſts chiefly the art of claying, not to ſink the pot of ſugar by a double clay lower from the brim than five inches, and yet to whiten the whole maſs alike to the bottom; but this cannot be effected without great judgment in boiling equally; and in ſeparating the pots into ſeveral claſſes, ſo as to clay each parcel in a manner ſuitable to the degree of boiling: for want of this art it is, that a planter may grow poorer by claying his ſugar, than if he makes only plain muſcovado: for, the loſs of ſugar diſſolved into melaſſes by claying injudiciouſly, cannot be compenſated by converting it into rum. He therefore who propoſes to clay ſugar to advantage, muſt firſt learn the art of boiling by the touch, as the only criterion of boiling to a degree of exactneſs:

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* That is the greateſt height for rich cane juice; but when wateriſh, it will be high enough, when a thread can be drawn. It is a general maxim that weak cane juice muſt be tempered very high and boiled low: the former is abſolutely falſe: for a due temper muſt be obſerved; to boil it very low is right, and that is a candy height.

appearance, and often deceive the moſt attentive and experienced eye; and no doubt there are other cauſes leſs obſervable, which produce the like effect; and therefore I recommend boiling by the [*] *touch* alſo, which is abundantly more certain, as *two* witneſſes are better than *one*.

To impart by words the knowledge of ſugar boiling by the *touch* is as impoſſible as to teach any other mechanic art, which can be attained by practice only: however, to convey the moſt adequate idea I am able, let the reader pardon the tediouſneſs of ſuch a dry deſcription, and obſerve this art of boiling by the touch is called by refiners *taking proof*. The method of doing it is by a pan-ſtick, of four feet and an half long, eighteen inches of which is made rounding for the graſp of the left hand, and three feet flat-wiſe, about two inches broad and an inch thick: by immerging this pan-ſtick into the liquor when boiled to a pretty thick conſiſtency, it will be ſmeared, upon which the boiler puts his right thumb, taking up a ſufficient quantity, and touching then the thumb with the fore-finger, draws the liquid ſugar like a thread at the inſtant when the heat is going off: this thread when broken will ſhrink from the thumb to the ſuſpended fore-finger, in ſeveral lengths as the boiler intends: for the different lengths at which this thread hangs to the fore-finger, determine preciſely the different degrees of boiling ſugar; and theſe degrees are proportioned to the ſeveral ſizes of moulds, or ſugar pots in which it is cured. The denominations by which theſe degrees are determined by refiners, are, *piece*, *lump*, and *loaf-height*. *Piece-height* is the higheſt degree, and ſuited to the moulds of the largeſt ſize, which contain about nine gallons: the thread of *piece-height* is about three inches long: that of *lump-height*, ſuitable to moulds of half the former ſizes, is when the thread ſtands at about an inch from the ſuſpended fore-finger: and *loaf-height*, ſuitable to the ſmalleſt moulds, is determined by the thread of a quarter of an inch long from the ſuſpended finger: and this *latter proof* is generally moſt ſuitable to the planter's purpoſes of making muſcovado ſugar; which ought to be of a large grain, well ſeparated from melaſſes. It has been ſaid above, that the boiler muſt take a ſufficient quantity of the liquid ſugar upon his thumb, to make an exact proof. That ſufficiency cannot be expreſſed in words preciſely, but muſt be juſt enough to allow the drawing of a thread, and not more; for, that will occaſion ſome deception. In like manner, if the thread is drawn at any other time than at the critical moment when the heat of the liquid ſugar goes off the thumb, the boiler will be deceived; for, if the liquid ſugar is either too hot or too cold when drawn into a ſtring, it will vary the appearance. In taking proof, the young learner muſt expect to bliſter his thumb, which he will think a ſmall fine for ſo profitable a purchaſe: but to give him as little pain as poſſible, when he takes up the liquid ſugar let him obſerve to keep his finger and thumb nimbly moving from and to each other in gentle contact, and then draw the ſtring at that inſtant when the intenſe heat is going off, by which means he will ſave his thumb from bliſtering and obtain an exact *proof*, according to the rules above preſcribed.

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[*] The art of boiling by the touch has been made a myſtery not to be imparted to negroes; but I do aver the contrary from experiment.

The method of boiling muſcovado ſugar I have ſaid is below loaf-height [*], and if then it is cooled with quickneſs in a broad ſuperficies and in a wooden cooler, the ſugar will be of a larger grain than if cooled in a deep or copper veſſel, as experience evinces. But if the ſugar is intended to be cured in pots or earthen moulds, it muſt be cooled in copper, or deep wooden coolers, that it may be conveyed from thence into the pots, while in the ſtate of a thick liquid. This will occaſion the grain of ſugar to be *ſmaller* (and more ſpecially if judiciouſly ſtirred while in the cooler) which is an advantage to the colour of clayed ſugar: for, a multitude of ſurfaces will reflect more rays of light, and conſequently appear *whiter* than larger particles, which have fewer ſurfaces. For that reaſon the moſt expert planters of Barbados generally boil their ſugar higher than other people; but whether to ſo much profit, muſt be determined by future experience: for, if a much leſs quantity of very white ſugar is obtained by boiling high, than by the contrary method, the queſtion is whether the greater price is an adequate recompence for ſo great a loſs of weight. In my humble opinion it is not: however, it is worth the trouble to determine that point by exact weight and meaſure. In ſuch computations the refined Barbados managers exceed all our Iſlanders. From one of theſe I have ſeen a receipt in form more exact, than that of a good houſewife for making a pudding, but by no means equal to it in effect. That celebrated manager preſcribes thus: "take ſo many pounds of good clay and make it into "a batter with ſo much water, and then put it to ſo many pounds of ſugar, con"tained in a pot of ſo many gallons, &c."

Can any man be the wiſer for ſuch a receipt with all the appearance of exactneſs? on the contrary, experience teſtifies this plain truth, that the quantity and thinneſs of clay-batter muſt be exactly proportioned, *not to the quantity of ſugar*, ſo much, as to the degree of height to which it is boiled, which the *face*, or ſurface of the ſugar in each pot muſt determine: for, if the cruſt breaks near the center, the ſugar is high boiled, and will require a thiner batter; and ſo *vice verſa*, the nearer to the edge of the pot the ſurface cracks, the thicker muſt be the clay: for, clay batter is only the means of filtering the water thro' the ſugar by eaſy degrees, ſo as to waſh all the grains from all the yellowneſs, or tinge of melaſſes, without diſſolving the ſmalleſt particles. In this proportion therefore conſiſts chiefly the art of claying, not to ſink the pot of ſugar by a double clay lower from the brim than five inches, and yet to whiten the whole maſs alike to the bottom; but this cannot be effected without great judgment in boiling equally; and in ſeparating the pots into ſeveral claſſes, ſo as to clay each parcel in a manner ſuitable to the degree of boiling: for want of this art it is, that a planter may grow poorer by claying his ſugar, than if he makes only plain muſcovado: for, the loſs of ſugar diſſolved into melaſſes by claying injudiciouſly, cannot be compenſated by converting it into rum. He therefore who propoſes to clay ſugar to advantage, muſt firſt learn the art of boiling by the touch, as the only criterion of boiling to a degree of exactneſs:

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[*] That is the greateſt height for rich cane juice; but when wateriſh, it will be high enough, when a thread can be drawn. It is a general maxim that weak cane juice muſt be tempered very high and boiled low: the former is abſolutely falſe: for a due temper muſt be obſerved; to boil it very low is right, and that is a candy height.

he muſt learn alſo all the other proceſs of halling and ſtirring the ſugar after it is filled into the pots, by which ſmall errors in boiling may be in ſome meaſure rectified. The ſame ſkill is requiſite to boil ſugar which is intended to be cured in pots, *without being clayed*; and therefore that practice is very unprofitable; for, tho' ſugar properly boiled will cure beſt in pots, yet if there be the leaſt error in boiling, it will occaſion the ſugar to be of a very ſmall grain, as is generally the caſe of Jamaica ſugar: for, if the ſame ſugar, which is of a ſmall grain by being put into pots, had been cooled with quickneſs, in a broad wooden cooler, and cured in hogſheads, the grain would have been much larger, as a ſingle experiment will evince. But if in conformity to old cuſtoms, a manager will chuſe to cure in pots, let him cool his ſugar in a ſhallow broad cooler till it becomes very thick, and only liquid enough to be taken up with a ladle, and put into the pots: for, by that means he will have a much larger grained ſugar than by the preſent practice of putting it hot into pots. It is a common practice to ſtir hot ſugar once or twice after being put into the coolers; which is a ſure means of breaking the grain, at the very moment while the ſugar is granulating. The reader will pardon the tediouſneſs of this dry deſcription, reſulting neceſſarily from the nature of the ſubject; and muſt take the pains to read, as he would undertake any other kind of labour, to promote his intereſt; for the Author cannot have his own in view, by communicating to others gratis, what he learned by much labour and expence. Not however to grow more tedious by apologies, let us proceed to the fourth point propoſed.

SECTION IV.

Of Diſtilling Rum.

THIS art not having ſelf-evident principles for its baſis, is founded ſolely upon experience. The nature of fermentation (which is previouſly neceſſary to make rum) can be learned only by practice, and adjuſted by exact weight or meaſure; and even then great diſappointments will happen to the diſtiller; either from imperceptible differences of heat or cold; or from ſome other latent cauſes not aſſignable. All therefore which can be done in this caſe, is to help the young diſtiller by a few general rules. As firſt, and principally to be very cleanly in the whole operation: for, if the mixture, or waſh, ſhould become ſour by uncleanlineſs, it never will yield a due proportion of ſpirit. Let the good planter therefore take particular care to clenſe his veſſels, whether caſks or ciſterns, from all ſediment every time they are uſed; and let them be ſometimes ſcalded, to preſerve them from all *ſourneſs.

The Barbadians (who think themſelves the beſt diſtillers in all the ſugar iſlands) chuſe caſks for that purpoſe: but I believe plank-ciſterns ſet above ground (as uſed in England) anſwer the purpoſe as well, and are leſs expenſive than iron-bound butts of a conical ſhape; provided thoſe ciſterns have cloſe covers to prevent evaporation. If thoſe critical diſtillers abovementioned could be contented with leſs in quantity, I preſume their common rum would have a reputation proportionate to what is called their *fine ſpirit*: for, upon the whole it is not for the general intereſt of an iſland to make rum below the juſt ſtandard of *good proof*. He therefore is the beſt diſtiller who makes rum of a *due proof*, in [*] proportion to the quantity of his ingredients.

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* Whenever the liquor of a ſtill-houſe becomes ſour, the ſhorteſt method is to throw it all away, and then ſcald the veſſels: for, there is not any art yet diſcovered which can reſtore it to a capacity of yielding ſpirit: but roapy liqour may be reſtored by a large infuſion of hot water. If in the courſe of fermentation the waſh grows very hot, cold water muſt be given to reduce it to a moderate heat.

The next care of a good diſtiller is to have a large fund of cool, clear, and fine lees: for, if theſe lees (which are as yeaſt or barm) be either hot or foul, the fermentation will be ſluggiſh and unprofitable.

The method of preparing fine lees always ready for uſe, is, to have three ciſterns of dimenſions ſufficient to hold three thouſand gallons, placed out of doors in frames. Into each of theſe alternately, the hot lees may run by a ſpout from the ſtills, and after ſtanding long enough to grow cool and fine, let it be drawn by a cock clear from all ſediment, into a large ciſtern within doors, to be kept for uſe. But let it be ſtrictly obſerved never to reſerve lees of ſour liquor, which yields no rum: on the contrary, let all ſuch be thrown away as pernicious, and make new lees either by ſetting melaſſes with fair water, or ſcum and water, with or without any addition of melaſſes; and when that has fermented properly, ſo as to yield any proof rum, the diſtiller may depend upon theſe lees as good. Thus originally good lees muſt be made at the beginning of each crop; or at any other time when the liquor becomes ſour, and fit only to be thrown away.

The general method of compounding the ingredients for making rum, is in this proportion; which, however, may be varied as occaſion requires with good effect, by a judicious diſtiller. One third of ſcum from the cane-juice, one third of water from the waſhing of the coppers (which ought to be waſhed once every twenty-four hours, if the boiler expects to make very good ſugar) and one third lees, is, I ſay, the general proportion now in uſe. And when theſe ingredients are put together pretty cool, and well mixed, the fermentation will begin ſoon, and riſe in twenty-four hours to a proper height for admitting the firſt charge of melaſſes. Of this ſix gallons for every hundred gallons of waſh, is the general proportion to be given at twice: three *per cent*. at the firſt charge when the liquor is riſen to an high fermentation, and the other three *per cent*. [†] a day afterwards, or a little longer, when the waſh is in a high fermentation: for, if the ſecond charge is given *after* the fermentation abates, the liquor will grow ſluggiſh, and never yield a due proportion of rum.

This I ſay is the general method of compounding waſh, and adding melaſſes at two different times, during the height of fermentation; and therefore I ſuffered my diſtillers to purſue it to my great loſs: but now I am convinced by repeated experiments, that by ſetting the waſh and the quantity of melaſſes at once (as is the conſtant practice both in Old and New England) is the ſureſt and beſt method of producing rum; for this method requires no other anxiety or attention of the diſtiller, but to judge by his feeling of the heat during the progreſs of the fermentation, and whenever he finds it riſing to near blood heat, immediately to cool it by one, two or three pails of cold water, ſo as to reduce it to a moderate equable heat:[*] on the contrary, if the ingredients be ſet warm, and grow colder, and the fermentation is ſluggiſh, the infuſion of hot water will raiſe, as the cold water abates the fermentation.

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[*] The boaſters in the art of making much more rum than their neighbours, give room to ſuſpect that they defraud the boiling houſe; and ſo by diminiſhing the quantity of ſugar, may eaſily increaſe the quantity of rum, which is by no means an equivalent; and therefore all ſuch fraud muſt be prevented by ſtrict prohibition, and narrow inſpection.

[†] The time here fixed for the ſecond charge for melaſſes, is in compliance with common practice: but a good taſte is the beſt rule.

This method therefore I recommend, as being the moſt certain, and requiring the leaſt attention and nicety: whereas by charging the melaſſes at different times, the degree of fermentation muſt be obſerved with critical nicety, or the waſh is ſpoiled; as every planter often finds by the effect, tho' he ſeldom ſees the cauſe.

When the fermentation falls by eaſy degrees from the fifth to the ſeventh or eighth day, ſo as then to grow fine, and throw up ſlowly a few clear beads, or air globules, it is ripe for diſtillation:[†] and with theſe air globules will appear other ſymptoms diſcernable by the taſte and ſmell, which cannot be deſcribed, and which experience muſt teach; if the obſerving planter is not over nice of his fingers, taſte, and ſmell.

The liquor or waſh being duly fermented and fallen, muſt be conveyed into the ſtill as fine from the ſediment as poſſible, by cocks, or wooden foſſets, placed within two inches of the bottom of each veſſel: for if the ſediment paſſes into the ſtill, it will not only give the ſpirit extracted, a fætid ſmell and taſte, but incruſt the bottom of the ſtill, and corrode the copper; to prevent therefore that laſt ill effect, conſtant care muſt be taken to ſcour often the bottoms of your ſtills.

In like manner, ſo ſoon as the veſſels are emptied and the ſediment waſhed out, let the quantity of fine lees intended for the next ſetting be poured in: for otherwiſe thoſe veſſels will in a few hours become ſour and unfit for uſe: but by the lees will be preſerved ſweet for three or four days, and forward the fermentation of the ſucceeding waſh.

Indeed much of the profit of diſtillation depends upon the care of preſerving our veſſels free from all ſourneſs, and in ſetting the waſh in regular and daily ſucceſſion during the whole crop: for when the wind blows freſh, and the boiling-houſe affords ſcum in abundance, then much of that, and little melaſſes ſhould make the compoſition. On the contrary, when there is but a ſcanty product of ſcum, the quantity of melaſſes muſt be increaſed; and when at any time there is none at all, melaſſes with water and a large part lees, muſt make the compoſition; from whence a gallon of rum may be produced for every gallon of melaſſes uſed. By this regularity it is no difficulty to produce two hogſheads of rum for three hogſheads of ſugar, without miſpending time upon grinding rotten canes, which ought to be applied to grinding ſound ones for ſugar.

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[*] Blood heat by Farenheit's thermometer is at 96: by a moderate equable heat, I mean the degree of 90, which is about 10 degrees above the medium heat of the air in this climate.

[†] Thoſe appearances are ſuitable only to a very weak waſh; but if it be rich, it cannot be fit for diſtillation, until quite flat and a cream upon it.

The good planter's next concern muſt be to draw off rum by a conſtant and equal fire, ſo as at firſt not to let his ſtill ſpew; for preventing of which it muſt not be filled higher, than within eight or ten inches of the brim; and then, if the ſtill be large, keep an equal fire ſufficient to run a ſtream of ſpirit from the worm nearly as big as a man's little finger; taking particular care to keep the [*] worm-tub perfectly cool by a conſtant influx of cold clear water, let into the tub thro' a large ſquare trunk of wood, placed perpendicularly, and the loweſt end within ſix inches of the bottom: there the cold water entering by the bottom of the trunk, may ſwell the hot water to overflow thro' a lip made at the upper edge of the worm-tub for that purpoſe; from thence convey it by a ſpout to an open reſervoir out of doors, where it may cool, and be applied again to the ſame uſe, in places where water is not plenty: but where the planter is bleſſed with a little ſtream of water it is eaſy ſo to contrive channels, as to paſs it thro' his boiling-houſe, and ſtill-houſe to the worm-tub, without pumps, or any other hand-labour: but if he has not a current to the works, he may by a cheap machine called a wind-mill pump, draw all the advantage without hand-labour, if he has plenty of water. This is worth the expence, ſince nothing conduces ſo much to improve the quantity and quality of rum, as keeping the worm-tubs [†] perfectly cool; for, otherwiſe a great part of the ſpirit will evaporate, and the rum acquire a burnt diſagreeable taſte, not wholeſome for thoſe who drink it. The worm-tub therefore muſt be kept perfectly cool by a conſtant influx of cold water, which condenſing the vapour as it paſſes thro' the winding of the worm, renders it a ſpirituous fluid; and the cooler it paſſes, the better will be the ſpirit, and the more of it. With this view to coolneſs I preſume the general practice here of hanging ſtills out of doors, took its riſe: but I conceive it to be a moſt egregious error; for in all other caſes *ſhade* and *wind* cool every kind of liquid much ſooner than wind and ſun. But if there were really ſome little advantages of that ſort, can they be a counterbalance to the inconvenience of expoſing our negroes *unneceſſarily* to all the extremities of heat, cold, rain and wind? Is this moral rectitude? And is it not equally inconſiſtent with every man's real intereſt to expoſe his people to all the inclemencies of the weather, ſubjecting them to the loſs of health and life; his rum to waſte in windy weather, and to thefts at all ſeaſons?

The ſtream of ſpirit running from the worm of a ſtill of 500 gallons (I have ſaid) ought to be near as big as a man's little finger; becauſe I have learned from repeated experiments, that if that ſtream is varied to the bigneſs of a ſtraw by an unequal fire, the ſpirit will become weak; but raiſe it again to the former ſtandard, and it will become a proof ſpirit; provided the tub be very cool. Whether the beſt method of diſtilling low-wines is by returning them into the ſubſequent ſtill of liquor, or by drawing them off ſeparately, experience muſt determine. The firſt method will certainly produce a cooler ſpirit, more palatable and wholeſome;

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[*] A large worm-tub bigger than uſual in proportion to the worm, by containing more water will be the cooler: and if the worm be hung eighteen inches from the bottom it will be farther from ſediment. The failure and conſtant decay of worm-tubs, occaſion much expence and frequent diſappointment: to prevent which a ciſtern of 24 feet long, 8 feet deep, and 9 feet wide, will hold 3 large worms for an age.

[†] A force pump is beſt, becauſe it will throw the water ſixty feet high.

but the latter ſeems more profitable for the London market, becauſe the buyers there approve of a fiery ſpirit which will bear moſt adulteration; and certain it is, that the oftener a ſpirit is diſtilled, the more fiery it will be. This is evidently the ground of preferring Jamaica rum to all other, not only becauſe it is of a much higher proof, but alſo more hot, and capable therefore of more adulteration: but it may be doubted whether the Jamaica planter does not loſe more by double diſtillation and over-proof, than he gains by the price at London. If that be a fact (as experiment may ſoon determine) it will be for his profit to draw more proof rum from the waſh, and a leſs quantity of low-wines, as expert diſtillers do in Barbados: but moſt certainly the ſpirit drawn from the waſh is more cool, palatable, and wholeſome, than that extracted from low-wines, by double diſtillation. However, not to impoſe my private opinion upon the candid planter, both methods are propoſed, that he may chuſe that which is beſt: and when he arrives at ſkill enough to produce two hundred and forty gallons of good proof-rum for *three* hogſheads of ſugar, he will arrive to the higheſt degree of perfection I ever attained. But this he can never do without the utmoſt care and regularity: for, he muſt ſo contrive to ſet his ciſterns of waſh, as to ferment in due time, and become ripe for diſtillation in regular ſucceſſion every morning, that his negroes may do the work of the day between ſun-riſing and ſun-ſetting; for, nothing is more unprofitable, and dangerous too, than diſtilling at night. It is true, that ſuch a regular progreſs requires much care and contrivance, a roomy ſtill-houſe, and large ſtills at a great expence: but yet, every good œconomiſt will find by experience, that the firſt charge of a complete well-contrived ſugar work, large enough to take off his crop in due time, without boiling after ten of the clock at night, or diſtilling after ſun-ſet, will amply recompence all the expence, by the quantity and good quality of his rum and ſugar; as by giving his negroes a due portion of reſt, they will continue ſtrong, chearful and vigorous to tranſact the ſucceeding labour of the day, with eaſe to them, and happineſs to himſelf.

Tho' many precepts before ſuggeſted, are taken from the Engliſh huſbandry now in uſe, yet before I conclude, it is neceſſary to give the planter a caution, againſt turning any of his land to paſture, by way of improving it by *reſt*; for tho' this is a right practice in cold countries, it is not ſo in warm climates. The reaſon is, becauſe in cold climates, the froſt operates like wedges, opening the ſoil, to receive the vegetative powers of the air, and ſnow, at every thaw of the froſt; and thus is fructified, while laid down to graſs: but in warm countries, land turned to paſture is baked by the ſun, and trodden by cattle, to a compactneſs, that will not admit the vegetative powers of the air to enter it. Thus plain reaſon ſhews, that the ſame practice cannot ſuit different climates; and my own experience confirms that truth, by repeated trials, from one, to ten years.

FINIS.

EXPERIMENTAL OBSERVATIONS
on the
BLAST.

SINCE the publication of this Treatiſe thoſe pernicious inſects called the Blaſt, have multiplied exceedingly; and made great devaſtation among our Sugar Canes: It ſeems therefore a matter of public ſervice, to propoſe ſuch methods of preventing, as much as poſſible, the encreaſe of them. To that end I have carefully examined that minute animal by a double reflecting microſcope, and find it to be a ſpecies of *Beetle*, as completely armed to the very claws, as Beetles of the largeſt ſize, but of a bronze colour, with an indenture at the head and tail nearly alike.

With all the pains I could take, it was not poſſible to view the under part of ſo minute an animal, ſo tenacious of its hold, and ſo active in reſiſting every means of turning it upon it's back: but from its effect upon the leaves of Sugar Canes, we may conclude, that it takes its nouriſhment thro' a Proboſis; for it is obſervable, that the leaves of Sugar Canes appear ſmear'd with a ſhining honey-dew, before any other effects of the blaſt are viſible: Therefore it is highly probable, that theſe animals make punctures in the Cane leaves thro' which the ſweet juice ouzes. Thence it is that the ſagacious Ants are conſtant attendants on the Blaſt, ſucking up all the honey-dew which ouzes from thoſe punctures.

Some people imagine a cloſer connexion between the Ants and Blaſt; but upon the niceſt examination of an handful of blaſted cane leaves, it appeared very evidently, that the Ants did not touch one of the neſts, tho' with great induſtry they pickt up every one of thoſe inſects called the Aſh or white Fly, which are generally concomitants of the Blaſt. Happy would it be for the poor Planters if the Blaſt was food for the Ants; much time and labour would be ſaved in wiping every blade of the Sugar Canes, from that infection, by dipping a woollen rag in a fluid compoſition, hereafter mentioned. But on the contrary, when the Ants have ſuck'd up all the honey-dew, they deſcend to the roots of young Canes, and eat up the fibres to their total deſtruction; if the induſtrious Planter does not draw all the mold from about the roots, which however is of bad conſequence in very dry weather, yet it muſt be put to the hazard, as the leaſt of two evils.

There is another remedy which ſome have uſed, (as they ſay) with good effect, and that is by mixing Arſenic with brown ſugar ſtrewed about each bunch of young Canes. I try'd that remedy upon two or three acres and it effectually deſtroyed the Ants for a ſhort time; but ſoon after a neighbouring Colony ſupplied their place.

After many years drought the Ants multiplied with the Blaſt in this Iſland, to ſuch a degree as to threaten diſſolution. To prevent that impending miſchief as every piece of Canes was cut, I left as much traſh upon the land as was ſufficient to burn it ſuperficially; and this effectually deſtroyed the Ants, Blaſt and Crickets. I am perſuaded that the like practice, would at leaſt prevent in ſome meaſure, the deſtruction made by thoſe Vermin at Bardadoes.

The ſame practice is the moſt effectual cure of the Blaſt alſo, either immediately after the Canes are cut; or when ſtanding, if they are highly infected. But where ſtanding Canes are burnt, they ought to be cut down immediately, the ſtools dug up, and the land burnt a ſecond time, when the cane tops are dry enough for that purpoſe. This I can vouch from repeated experiments, to be a cure for the Blaſt at the next planting and the following Rattoons; provided there is not a fund of Blaſt in the Neighbourhood; whether to windward or leeward matters not for the infection ſpreads every way; and no wonder ſince thoſe inſects, like other Beetles, have wings under the ſhell coverings. Thoſe wings are not diſcoverable by the help of the beſt Microſcope, for the reaſons before given: Yet it is evidently ſo, from flights of them falling upon the middle of a Cane piece in a ſpot of an acre, when all the other parts are not infected. It appears likewiſe from the traditionary accounts, that the firſt infection of the Blaſt came from Grand Terre, by a ſtrong South-Eaſt Storm, and fell on Bermudian Valley, the the South Side of this Iſland, and ſpread gradually ever ſince by neglect.

I have ſaid that the Blaſt has ſpread ſo far and wide by the negligence of thoſe Planters who did not take timely care, to wipe the young canes before thoſe pernicious Animals hatched, and multiplied as they will do in a few days, to a degree incredible, and when that happens nothing but fire, can be an adequate remedy.

Groundleſs opinions, conjectures, and above all, the avarice of Negroe labour, have been the genuine cauſes of the great encreaſe of Blaſt in Barbados, and this Iſland.

Nothing leſs than a penal Law, and ſummary in the execution, can prevent the peſtilence from ſpreading to the ruin of the Sugar Colonies.

To ſuch a Law the following objections are made:

1. That it is an infraction of every Britons right to ſubject his Plantation to a ſearch for Blaſt. Theſe objectors, one would imagine, think their Plantations Holy Ground; or rather like the *Holy of Holies* in the Jewiſh Temple, where none but the *High Prieſt* muſt enter. How can that be an infraction of a Britons right, which is allowed by the Laws of Britain? Has not a ſingle Magiſtrate full power by the Law, to iſſue his ſearch warrants for ſtolen goods; to purſue Thieves, Robbers, Felons? and do not our own Laws juſtify the perſuit of fugitive Negroes, into ſtanding Canes, though to the great injury of the owners? the reaſon is plain, as juſt; becauſe the public good is always preferable to private intereſt. But what injury can reſult from one Planter inſpecting his Neighbours Canes, from whence he ſuppoſes infection to be derived?—none at all:—This objection therefore is abſolutely groundleſs.

2. Another objection is that if a ſummary Law is made, authoriſing two Magiſtrates to appoint upon Complaint, three or four Planters of the Neighbourhood, to inſpect *upon Oath*, Blaſted Canes, and to report the infected ſtate thereof; and to oblige the owner to wipe thoſe Canes from Blaſt, under a ſevere fine for every days neglect, it will be an infraction of his right, or if the Canes be grown high and incapable of being cleaned from Blaſt, by wiping; and the Magiſtracy is im-

powered upon a report made upon Oath, by four Planters of good character, they be authoriſed to order ſuch Canes to be burnt, the objectors ſay this will be depriving a man of his property, without the Verdict of a *Jury*, which is the birth right of every Britiſh Subject. Depriving him of his property! of what value is a piece of ſuch Blaſted Canes? a property not worth a farthing. A property that will not make Rum or Sugar, ſufficient to pay the charge of grinding the Canes.

In a Country ſo thin of Freehold Inhabitants, Juries made up of thoſe that are not Freeholders, are taken to do the ordinary buſineſs of our Courts of Law; how then can Juries be found? and if they could and were not all Planters, they would be incompetent Judges. But who muſt pay the expence of ſuch Juries; not ſurely the innocent complainant, who is infected by his neighbours Blaſt? for that would be to puniſh the innocent for the guilty. Not ſurely the public; for that would be ſtill more unjuſt to mulct a whole community, for a few delinquents.

Surely thoſe Gentlemen who propoſe Juries in this caſe, do not conſider the rapid encreaſe of the Blaſt. It hatches in a very few days and multiplies ſo faſt, that it would infect a whole diviſion, before the formalities of a Jury could be effected. A ſummary courſe of Juſtice is therefore the only means of ſtopping the encreaſe of the Blaſt; and in that caſe too, the fines impoſed upon delinquents, muſt be *heavy*; or they cannot rouſe the indolent, or influence the careleſs, and avaricious.

Penal Laws are not made ſo much for puniſhment, as to prevent the Evil; and therefore every man who acts rightly, need not fear the rigours of Law. But after all, if this ſubject be conſidered in a *moral view*, it is the indiſpenſable duty of every good man, to take ſuch early care to cure the Blaſt, as to prevent the infection from reaching his Neighbours: for he who infects his Neighbour's Canes by neglect, or otherwiſe; deprives them of ſo much of the fruits of their labour, as if he forced it out of their pockets.

If the injury is done, it makes no difference, whether done by force, fraud or negligence.

Nay if *ſelf-intereſt* was maturely conſidered, it will be found upon the whole, more promoted by deſtroying, than by neglecting the Blaſt. In truth if mankind would act up to their *true intereſt* there could not be occaſion for any penal Laws; and every Government would be an Eutopia.

The beſt compoſition yet diſcovered, for wiping the Blaſt, from young Canes is as follows:

Take a barrel of ſalt, or freſh water, put into it three or four handfuls of this Country Pepper, after being well bruiſed;
Three or four handfuls of Stinking-weed roots;
A leaf of the ſmall Aloe cut into ſlices; or if that is not to be had a like quantity of the great Aloe, vulgarly called Dagger.
A quart of beſt Temper Lime.
Mix all theſe together, and after ſtanding 24 hours, dip woollen rags into ſome of it, and wipe the blaſted Canes, letting a little of the liquor fall into the Centre of the Canes ſo wiped.

THE END.

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